

**JEFFERSON COUNTY
HAZARD MITIGATION PLAN**

January 1, 2005

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CHAPTER I

Introduction and Objectives

A. Introduction

Without a pre-disaster mitigation plan and effective implementation, the impact of a disaster, response and rebuilding becomes costly and unnecessary. This Hazard Mitigation Plan (the Plan herein) is designed to provide information and direction to Jefferson County (the County herein) and its political subdivisions for evaluating the natural and man-made hazards (for the purposes of this Plan, “hazards” herein) that present a threat to the County. The Plan also provides information for county agencies to assess the vulnerability of their assets and select the appropriate actions to mitigate the risk of these hazards. To that end the Plan outlines procedures for identification of mitigation opportunities and outlines activities designed to protect the health, safety and welfare of the citizens of Jefferson County. As such the Plan is intended to serve as a guide for those agencies and levels of government, as well as the private sector, that have the capability and resources to develop mitigation programs within their areas of responsibility. Therefore, implementation requires that a number of agencies, entities and people work together to successfully mitigate the risk of hazards and subsequent damages.

1. Risk Analysis

Within this Plan, risk analysis estimates the total population and property exposed to a hazard, and describes the characteristic of that hazard. Hazard risks can be classified in the following terms:

- | | | | |
|----|---------------|---|--|
| a. | Magnitude | - | How big or strong the event may be? |
| b. | Duration | - | How long will the event last? |
| c. | Distribution | - | Where will the events occur? |
| d. | Area Affected | - | How much area is affected? |
| e. | Frequency | - | How often the event may occur? |
| f. | Probability | - | The likelihood of the event occurring. |

2. Vulnerability

While the classification of risk indicates how, where and when events may occur, vulnerability indicates what is likely to be damaged by the identified hazards and how severely. Vulnerability is the degree of exposure to a hazard, how susceptible we are to the hazard and the losses likely to result in the event of a disaster. Assessing vulnerability is just as important as risk assessment because it frequently provides mitigation priorities.

B. Authority

1. Federal

a. The Authority requiring that a hazard mitigation plan be developed for each state and/or tribe is as follows:

- 1) Section 322 of the Robert T Stafford Disaster Relief and Emergency Assistance Act, as amended (The Stafford Act) [Public Law 93-288, 42 USC §§5121-5204c, as amended by the Disaster Mitigation Act of 2000 (Public Law 106-390, October 30, 2000)].
- 2) 44 Code of Federal Regulations (CFR), Parts 201 and 206. Hazard Mitigation Planning and Hazard Mitigation Grant Program; Interim Final Rule
- 3) Federal Emergency Management Agency (FEMA) Headquarters Hazard Mitigation Planning Guidance Checklist.
- 4) Post-Disaster Hazard Mitigation Planning Guidance for State and Local Governments-DAP-12/September, 1990 (Web Site www.fema.gov/mit/pubcmty.htm). This publication can also be ordered by calling 1-800-480-2520.
- 5) Memorandums from Ernest B. Abbott, FEMA General Counsel, dated November 6, 2000, regarding "Implementation of PL 106-390 Disaster Mitigation Act of 2000, (Stafford Act Amendments)."

b. In addition, the federal authorities require the identification, evaluation and mitigation of significant hazardous conditions attributed to the most recent disasters. Federal responsibilities and resources for post-disaster hazard mitigation activity include;

- 1) FEMA Public Assistance and Hazard Mitigation Grant Program (HMGP)
- 2) Individual and Family Grant Program
- 3) Executive Orders 11988 (Flood plain Management and 11990 Protection of Wetlands).

2. State

The Montana Code Annotated, Title 10, Chapter 3, Section 101 directs political subdivisions

within the State "...to provide for the common defense and...to preserve the lives and property of the people...." Further, this chapter of Title 10 states the state emergency management function as primarily responsible for preventing, minimizing-injury and repairing damage from natural and man-made causes. The governor has the leadership role in providing this directive to all state agencies.

After an event that qualifies for a presidential declared disaster, the declaration will direct the state to initiate the mitigation process. This response is required by Section 302 of the Stafford Act and is stated in the FEMA-State Agreement. Therefore the governor, through executive power, directs specific agencies to participate in post-disaster mitigation activities.

3. County

Further, Chapter 3 of Title 10, Section 401 directs each political subdivision to prepare local disaster and emergency plans in support of the state program. Pre-disaster mitigation planning and implementation helps reduce the need for post-mitigation activity and expense. Therefore, local governments have a significant responsibility for planning and implementing effective mitigation, both before and after disaster events. For its part the county emergency management has an annual responsibility to complete a pre-disaster hazard analysis, which will identify potential problem areas. This annual analysis will also predict the county's ability to address these hazards through a capability assessment. The Jefferson County Growth Policy, which was adopted on June 18, 2003, outlines the goals and objectives that will help direct the future development of Jefferson County. Many of those goals and objectives parallel those in this Plan.

4. Local

In a post-disaster environment, locally effected areas are also expected to participate in the mitigation evaluation. Local government participation with federal and state agencies in the Montana Hazard Mitigation Team (MT-SHMT) process is crucial. Recommendations on alleviating or eliminating a repetitive problem often focus on local assessment as to the causes of damage and depend on local implementation. 44 CFR 201.6 requires that the local pre-disaster hazard mitigation plan be formally adopted by the political subdivisions requesting approval of the Plan.

C. Purpose

In addition to fulfilling the legal obligation under the Stafford Act, as amended, this pre-disaster mitigation plan serves the following purposes:

1. Recognize and describe the potential hazards and impact upon the county.
2. Identify authorities, capabilities and shortfalls, and assign responsibilities to:
 - a. Develop programs, activities, strategies and recommendations for

- mitigation,
 - b. Monitor and implement pre-disaster and post-disaster mitigation measures, and
 - c. List the County's mitigation strategies.
- 3. Identify and establish mitigation goals, objectives and priorities.

D. Scope

The scope of this Plan is countywide. Actions and recommendations are not restricted to those localities designated as disaster areas. Impact of natural conditions in one part of the County will often have a similar effect upon another. This Plan provides mitigation strategies, goals, objectives and priorities, which can serve to strengthen and improve the effectiveness of county operational procedures.

E. Mission Goals and Objectives

The mission goals and objectives of this Plan are to create a disaster resistant county by reducing the threat of natural or man-made hazards to life and property. At the same time they develop emergency response capabilities, economic stability and security of the critical county infrastructure, while encouraging the protection and restoration of natural resources and the environment. A sound planning process is essential to the development of an effective mitigation plan.

1. Goals

Thus, the goals include:

- a. Describe and evaluate vulnerability of hazards,
- b. Motivate the public, private sector and government agencies to mitigate against the effects of hazards through information and education,
- c. Coordinate and establish priorities for hazard mitigation programs and activities at all levels, and
- d. Document and evaluate successful progress in achieving hazard mitigation

2. Objectives

The Plan itself has two objectives

- a. to guide a mitigation program to reduce or eliminate destructive effects of significant hazards, and
- b. to serve as a public and private sector reference document and management tool for mitigation activities

F. Mitigating Disaster Effects

1. Why Mitigate?

Emergency management deals with the cycle of mitigation, preparedness, response and recovery. All too often mitigation is considered as a post-disaster activity. Damages occur, recovery takes place, and then questions arise as to why it happened and what can be done to correct the problem. The amount of money spent on all phases of emergency management increased steadily through the 90s. Pre-disaster hazard mitigation actions are intended to eliminate or lessen the impact of a catastrophic event upon life and property. The requirement to develop a post-disaster hazard mitigation plan provides an opportunity for communities to develop strategies for reduction of potential losses from recurring natural disasters. Whether applied in post-disaster reconstruction or during pre-disaster planning efforts, hazard mitigation provides planners with guidelines for reducing losses from future disaster.

2. Probability of Hazard Events

Natural events such as floods, tornadoes, droughts, winter storms, earthquake and wildfires are considered inevitable subject to climate and geophysical conditions. Hazards associated with these potential disaster-producing events become evident when a risk factor is applied. Natural hazards such as flooding or tornadoes hold little threat to life or property in a sparsely populated environment. The risk of an event causing significant damage or destruction increases significantly with changing land use patterns including commercial and residential development. While the County cannot control the occurrence of hazard events, it can directly influence the severity of impact by initiating pre-disaster long-term hazard mitigation planning, principles and practices. This can be accomplished by taking action to “break” the repetitive cycle of damage, reconstruction and recurrence of damages to the same locality or facility. However, the county recognizes it is not always easy to predict the location or amount of impact a disaster may have, but by investing now, lives and money will be saved in the years to come.

3. Mitigation Strategies

Mitigation actions are most often considered as taking the form of structural or non-structural measures. Implementation of mitigation actions can take either type of measure or a combination thereof. There are primarily four basic approaches to mitigation:

- a. Altering the Hazard - Modifying the hazard to eliminate or reduce the frequency of its occurrence. Examples are the triggering avalanches under controlled conditions or clearing woody debris from around buildings (fuel reduction) as a viable means of slowing or preventing the spread of devastating wildland fires.
- b. Averting the Hazard - Redirecting the impact away from a vulnerable location by using structural devices or land treatment to shield people and development from harm. Dikes, levees and dams all represent physical efforts implemented to keep the risk away from the people and structures.
- c. Adapting to the Hazard - Modifying structures and altering design standards of construction. Identified problems such as threats from high wind, earthquake, and sliding or subsidence, and heavily forested terrain

all require special building standards and construction practices in order to reduce vulnerability to damage.

- d. Avoiding the Hazard - Keep people away from the hazard area or limiting development and population expansion in a risk area. Enforcement actions such as regulations, building codes and ordinances are intended to restrict, limit or deny access to specially identified risk areas.

G. Ranking of Hazard Mitigation Projects

It is necessary to prioritize and rank a range of hazard mitigation projects in order to qualify for funding to assist with the costs associated with such projects. The ranking from the highest priority will be in accordance with the State Administrative Plan and 44 CFR 206.435 guidance, as follows:

1. Measures that best fit within an overall plan for development and/or hazard mitigation in the community or disaster area.
2. Measures that if not taken, will have an adverse impact on the area, such as potential loss of life, loss of essential services, damage to essential facilities or economic hardship on the community.
3. Measures that have the greatest potential impact for reducing future disaster losses.
4. Measures that are designed to accomplish multiple objectives or multi-purpose projects versus single purpose projects, including damage reduction, environmental enhancement and economic recovery.

CHAPTER II

Planning Process and Multi-Jurisdictional Plan Adoption

A. Planning Process

This multi-hazard type mitigation plan represents the efforts of the Jefferson County Disaster and Emergency Services (DES) in concert with the Jefferson County Local Emergency Planning Committee (LEPC); the towns of Whitehall and Boulder, their officials and representatives; the Montana State Hazard Mitigation Officer, who provided significant guidance and support in all aspects of plan development; and an open public involvement process pursuant to 44 CFR §§201.6(b) and (c).

Prior to the development of this Plan, in August 2002 and 2004, respectively, the Jefferson County DES Coordinator and LEPC reviewer attended the Montana Predisaster Mitigation Planning Workshop for Local Governments. Prior to and during development of the plan the DES Coordinator and LEPC reviewer worked closely with the Montana state hazard mitigation officer.

Notice of planning meetings were published in the local newspapers; Boulder Monitor, Jefferson County Courier and Whitehall Ledger. (Appendix B) Business owners, current and former County leaders, school officials and many other individuals were encouraged to attend by personal letter and e-mail invitation of the County Disaster and Emergency Services Coordinator. Other agencies such as the US Forest Service, Montana Developmental Center, Montana Department of Transportation, and Riverside Corrections were also invited to comment and provide input. (Appendix B)

In January 2003 public meetings were held in Whitehall, Boulder, and Clancy, the major population areas of the County, for citizen and agency participation to determine hazard risk and vulnerability and to identify projects for mitigation. (Appendix B, Sign-in Sheets)

Many elected officials, city, county and emergency services representatives, and members of the local communities attended the various public meetings, participated in the planning process and contributed significantly to the Plan's development. (Appendix B, Sign-in Sheets)

Further, information gathered from the history of the County as well as from the public meetings has served as a guide for this document.

A final public meeting will be advertised to solicit comments on the draft plan. This draft will be distributed to the LEPC, the County Commission, the County political subdivisions, and other agencies. It will also be posted on the County website, and will be available at the libraries in Whitehall, Boulder and Clancy for public review.

B. Plan Adoption by Local Political Subdivisions

This Plan has been adopted by the local jurisdictions pursuant to 44 CFR 201.6(c)(5). The resolutions as signed by the Jefferson County Commission and the Councils of the Town of Whitehall and City of Boulder are attached hereto in Appendix A.

CHAPTER III

Risk and Vulnerability Assessment

A. Risk Assessment

A risk assessment has been conducted to address the requirements of The Stafford Act by evaluating the risk to the community of the highest priority hazards. The Stafford act requires detailing the potential losses to critical facilities; federal, state, and private, and residential and business property resulting from natural hazards by assessing the vulnerability to such hazards. This plan also evaluates the risks presented by man-made hazards. The goal of the risk assessment process was to determine which hazards presented the highest risk and had the greatest concern of the community citizens and what areas are the most vulnerable to hazards. Further, the analysis considered those hazards that had historically caused the most problems. Cumulatively, these considerations focused the plan on the four hazards most likely to occur and generate to the greatest damage. The public meetings played a big role in this analysis as it allowed the citizens of the community to brainstorm the various hazards and rank their concerns.

Jefferson County is a large diverse area with mountains, plains, forests and grassland. There are two (2) incorporated communities (Maps 2 & 3, pp 18 & 19), four (4) unincorporated communities (Maps 4, 6 - 8, pp 20, 22-24), and a large number of subdivisions within the County.

The 2002 census lists the population of Jefferson County at 10,049 people residing in an area of 1,658.9 square miles. It is not likely that any single isolated incident would result in a high loss of life. The impact of a large wildfire in any of the identified high-risk areas would result in varying degrees of personal property damage. The effect of a large earthquake would cause a greater impact on the infrastructure in the County than injury or loss of life, and would possibly account for greater property damage.

Many hazards have been identified in Jefferson County that pose a threat to the community. Those hazards were identified and profiled by several different means. A history of past events was gathered and recognized through Internet research, available GIS data, public meetings, county records and old newspapers. As well, input was collected at the public meetings from individuals voicing their opinions and concerns. Thus, the possible future events could be predicted and ranked according to the probability of occurrence. In this manner, the top three identified for mitigation projects were Earthquake, Flood, and Wildfire.

The hazards (in alphabetical order) have been identified in Table 1, as follows:

Table 1

Hazards Identified in Jefferson County, Montana

Hazard	How Identified	Why Identified
Aviation	Newspaper articles Recent History	Small incidents in the past., but Flt Path - Salt Lake to Helena, and Bozeman to Butte for Delta and Frontier Airlines overlays

Hazard	How Identified	Why Identified
Civil Disorder: Terrorism Bomb Threats	Jefferson High School	Past Incidents
Dam Failure	Department of Natural Resources and Conservation Jefferson County DES Dam Emergency Action Plans	Potential loss of life down stream DES office has plans for five area dams, some outside of the County
Disease: Animal Human	Montana Department of Livestock Department of Fish, Wildlife and Parks Centers for Disease Control	Importance of livestock health to the local economy. New emerging diseases such as SARS and West Nile Virus Potential for disease spread as a terrorist incident
Drought	National Interagency Coordination Center National Resources Conservation Service Water Management Bureau Natural Resource Information System	Frequent historical and ongoing drought events. Importance of agriculture to the local economy Relationship to wildfire danger
Earthquake	Montana Bureau of Geology and Mines website USGS National Seismic Hazard Mapping Project website	Numerous faults within the County History of nearby earthquakes of greater than 6.0 magnitude Community growth since last large earthquakes Related to potential hazardous material incidents
Flood	FEMA Flood Hazard Mapping Program Flood Plain management studies History	Several creeks and streams run through the County including the Boulder River and Jefferson River Past incidences
HAZMAT	Jefferson County DES Input from planning/public meetings	Two Interstate highways and one secondary highway cross Jefferson County and there are undetermined amounts of Hazardous Materials at any time
Utility Interruption: Electricity Natural Gas	History History	Previous Events - fire related, storm related and animal caused Previous Event - Semi truck crash into Natural Gas pump house
Thunderstorm	Newspaper articles; SHELDUS, USC Hazards Research Lab	Aug 1891 6" hail near Radersburg June 1938 All crop damaged in Lower Boulder Valley July 1939 Damaged crops from 3 miles N to 12 Miles S of Boulder September 1983 Property and Crop damage

Hazard	How Identified	Why Identified
Transportation: Interstate, State, County/City roads	Citizen interviews, newspaper articles	Road closures due to floods and to winter storms
Urban Fire	Newspaper articles	Past historical events
Volcano	Mount St. Helen State DES Website USGS	1980 eruption in western Washington State caused vehicle damage and affected those with respiratory diseases in this County Several inactive volcanoes in the County
Wildland Fire a. urban interface b. public land c. private land	National Interagency Coordination Center Natural Resources Conservation Service Natural Resource Information System Helena National Forest Input from planning/public meetings	Past and recent experiences in all areas of the County.
Wind	Input from public meetings SHELDUS, USC Hazards Research Lab	Multiple incidents , particularly between 1990 and present.
Winter Storm	Newspaper articles Input from planning/public meetings Western Regional Climate Center	Recent history of road closures due to winter conditions. Potential for power outages during a cold spell. Feb. 1933, 200 people marooned in Boulder during temps -30 to -60

B. Assessing Vulnerability

In order to adequately profile the potential for property damage and loss of life in the event of a major incident, the same County demographics and statistics as used to assess risk and the subsequent additional information have been taken into consideration.

The City of Boulder is a community of 1352 people that lies at the northern end of the Boulder Valley near the center of the County. The terrain is a wide-open space surrounded by the Deer Lodge National Forest. Farming and ranching families occupy the open spaces to the east and south. Boulder, being the county seat, houses local government offices and is the home to two State residential institutions. The area East and West of Boulder from Basin to Clancy along the Boulder River presents a situation for floods unique in the County. (See Photos 1 to 14) This area has been repaired and “rip-rap” installed to minimize future flood events. Also, the Wildland/Urban interface in this area presents a wildland fire hazard unique in the County.

The Town of Whitehall, population 1092, located at the far south end of the County is a community also in a wide-open area. Whitehall businesses provide a very diverse number of services to the surrounding agricultural industry. There are also a number of senior care residences and a treatment center for patients recovering from traumatic brain injuries. The railroad spur through Whitehall presents a unique situation for HAZMAT incidents, however, this spur is currently utilized only for transportation railroad ballast materials and rarely coal products.

The unincorporated areas of the County include many citizens who reside in outlying areas, and who require a number of services and numerous important critical infrastructures.

Structure losses have been estimated using various data sets and various types of hazard areas, such as a wildland fire interface. Whenever possible, the hazard area is overlaid on the structure data to determine the number of structures that lie within that area. The values of those structures were then calculated using FEMA replacement values. In most cases, the dollar values are multiplied by a damage factor since many events will not result in a complete loss and may have only minor damage. These figures, of course, will only represent estimates but are based on current hazard data. No public infrastructure buildings have been identified as being in wildland fire areas and very few in any flood area. They would, however, be a major consideration in the event of a strong earthquake. Losses in the case of wildland fire will be primarily private residences.

Critical facilities were also analyzed individually based on the hazard information available. Whenever possible, losses were based on the Insurance Appraisal reports or local resources. Others were estimated on factors listed in the FEMA How-to Guide, *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA 386-2).

The population impacts were assessed based on the percentage of the population estimated to have residences in the hazard area and the general warning time anticipated. The loss of life and possible injuries are difficult to determine and would depend significantly on the time of day or year.

Within the County there are several areas that draw tourists. The largest of these is the Lewis and Clark Caverns State Park located east of Whitehall. The ghost town of Elk Horn draws many visitors and has become the year round residence for a small number of citizens. Campground areas on National Forest land are occupied from early spring until the hunting season closes in the fall. All of these are located in timbered areas and have been affected by wildland fires in the past.

An important piece of assessing the vulnerability of the community to the identified hazards is to determine what assets may be more vulnerable to those hazards than others. Those facilities that are considered vital to the community such as law enforcement, fire services, health services and other government services have been identified as **critical facilities**. (Tables 2- 4, pp 13-16). Facilities, housing particularly vulnerable populations such as nursing homes for the elderly, schools, jails and shelters are also considered to be critical facilities. The Disaster and Emergency Services Coordinator and additional research through the planning process have identified these facilities. The Critical facilities can be found on Maps 2-10, pp 18-26.

The critical facilities owned privately or by the local government are also outlined in more detail in Table 2 in terms of their values. The critical facilities owned by the State of Montana and the Federal government are also listed in Table 4

Table 2

Critical Facilities

Name	Address	Size (sq. ft.)	Replacement Value (\$)	Sources of Information
Jefferson County Courthouse	101 Centennial Boulder	15,688	2,118,415	Jefferson County Insurance Appraisal Reports
Jefferson County Law & Justice Center (Law enforcement offices, Justice Court, Jail, Emergency Operations Center)	110 S Washington Boulder	21,290	2,194,585	Jefferson County Insurance Appraisal
Jefferson County Courthouse Annex (1)	101 Centennial Boulder	6,014	309,839	Jefferson County Insurance Appraisal
Jefferson County Courthouse Annex (2)	114 Washington Boulder	2,212	79,968	Jefferson County Insurance Appraisal
Boulder Fire Station	207 W 2 nd Boulder	2112	140,000	Boulder Insurance Appraisal
Bull Mountain Fire Station 1	3755 Hwy 69 Boulder	2000	\$100,000	Bull Mountain Fire Trustee
Bull Mountain Fire Station 2	2274 Hwy. 69 Boulder	1100	\$50,000	Bull Mountain Fire Trustee
Basin Fire Station	94 Basin St Basin	1500	\$80,000	Basin Fire Trustee President
Clancy Fire Station 1	1 Railroad Way Clancy	2400	140,000	Clancy Fire Chief
Clancy Fire Station 2	Haab Lane Clancy	1764	75,000	Clancy Fire Chief
Jefferson City Fire Station	21 Spring St Jefferson City	<i>pending</i>	<i>pending</i>	
Elk Park Fire Station (2 buildings)	570 E Elk Park Rd Elk Park (Butte)	2400 1600	150,000 (total)	Elk Park Fire Department
Montana City Fire Station 1	113 Mission Mountain Rd. Mt City (Clancy)	4000	250,000	Montana City Fire Chief
Montana City Fire Station 2	43 Jackson Creek Rd, Mt. City (Clancy)	2000	100,000	Montana City Fire Chief
Whitehall Fire Station	200 W Legion Whitehall	9000	300,000	Whitehall Fire Chief
Boulder Ambulance Building	205 W 2 nd Boulder	1228	81,000	Boulder Insurance Appraisal
Elkhorn Search and Rescue Building	4 Railroad Way Clancy	2280	150,000	ESAR Members
Whitehall Water Towers	West of Whitehall St West of Paul's Gulch Rd		150,000 (2)	Visual, estimate
Boulder Water Towers	East of Main St			Visual, estimate

Name	Address	Size (sq. ft.)	Replacement Value (\$)	Sources of Information
Jefferson County Transfer Stations - Basin	Cataract Creek		5,000	Original Cost
Jefferson City	Jefferson & Spring		100,000	Original Cost
Clancy	Shady Lane		125,000	Original Cost
Montana City	Wildish Lane		150,000	Cost plus inflation
Whitehall	Paul's Gulch		150,000	Cost plus inflation
Boulder	N. Little Boulder Road		150,000	Cost plus inflation
Whitehall Town Hall	2 N Whitehall St Whitehall	3972	225,661	Whitehall Insurance Appraisal
Boulder City Hall	304 N Main Boulder	1680	60,000	Boulder Insurance Appraisal
Whitehall Public Works Shop	512 1 st E Whitehall	1512	78,453	Whitehall Insurance Appraisal
Whitehall Public Works Shop	201 E Legion Whitehall	3420	118,825	Whitehall Insurance Appraisal
Boulder Public Works Shop	301 N Madison Boulder	3500	215,000	Boulder Insurance Appraisal
Jefferson County Public Works Shops Montana City	T9N,R3W,S35	3600	111,675	Jefferson County Insurance Appraisal
Whitehall	100 Lucille Whitehall	1755	50,789	Jefferson County Insurance Appraisal
Boulder	100 Odyssey Ln Boulder	5252	314,520	Jefferson County Insurance Appraisal
Whitehall Airport		4,500x72		
Boulder Airport		3,675 x 72		
Delmo Lake Dam	Big Pipestone Ck, West of Whitehall	N/A	N/A	Pipestone Water Users Assn. - Owner
Alternative Youth Adventures	105 Venture Way Boulder			Land - County Owned Building - JLDC

Table 3

Vulnerable Populations and Other Community Facilities

Name	Address	Size (sq. ft.)	Replacement Value (\$)	Sources of Information
Cardwell School	Cardwell	7,538	775,000	County Superintendent of Schools
Clancy School	6 N Main Clancy	64,000 4,608 1,920 7,800	5,760,000 480,000 144,000 191,000	Jefferson County Insurance Appraisal
Boulder Elementary	205 S Washington Boulder	40,000		School District Clerk
Jefferson High School	312 S Main Boulder	70,334 3,000		

Name	Address	Size (sq. ft.)	Replacement Value (\$)	Sources of Information
Basin School	30 Quartz Basin	6768		
Whitehall Middle School	110 N Main Whitehall	48,460	5,149,000.	Whitehall School Insurance Appraisal
Whitehall Elementary and old gym	110 N Main Whitehall	30,947	1,114,000.	Whitehall School Insurance Appraisal
Whitehall High School and industrial arts complex	110 N Main Whitehall	44,462	1,206,000.	Whitehall School Insurance Appraisal
Montana City School	Crystal Creek Road Clancy	67,700	5,574,461 S 745,264 C	Montana City School Insurance Appraisal
Boulder-Basin Senior Citizens Center	201 S Main Boulder			
Whitehall Senior Citizens Center	3 N Division Whitehall	2400	150,000	Jefferson County Insurance Appraisal
Jefferson Valley Museum, (two buildings)	303 S Division Whitehall	4500 1800	165,000 45,000	Jefferson County Insurance Appraisal
Jefferson County Fair Grounds	1 Fairground Road Boulder		364,5000	Jefferson County Insurance Appraisal
Boulder Medical Clinic/Jefferson County Public Health Office	214 S Main Boulder			Private Ownership
Whitehall Medical Clinic	108 1 st St W Whitehall	2500	250,000	Owners Insured value
Boulder Community Library	202 S Main Boulder	2150	150,671	Jefferson County Insurance Appraisal
John Gregory Memorial Library	110 W 1 st St Whitehall	1408	158,217	Whitehall Insurance Appraisal
Evergreen Clancy Health & Rehabilitation Center	474 Hwy. 282 Clancy			Private Ownership
Quality Life LLC	12 Bessler Rd. Montana City			Private Ownership
The Homestead Place	39 Microwave Hill Rd. Montana City			Private Ownership
Golden Garden LLC	113 3 rd W Whitehall	3,800	350,000	Bank Appraisal
Meadow Lark Manor	35 Skyline Dr. Whitehall	8,000	750,000	Bank Appraisal

Table 4
Critical Facilities: State and Federal Owned

Name	Address	Ownership
Park Lake Dam	T8N, R5W, S13	State of Montana
Department of Transportation Buildings - Bernice	Bernice	State of Montana
- Boulder	Boulder	State of Montana
- Whitehall	Whitehall East	State of Montana
- Whitehall	Whitehall West 580 W Hwy 2, Whitehall	State of Montana
Montana Developmental Center	Boulder	State of Montana
Riverside Corrections	Boulder	State of Montana
Lewis & Clark Caverns	East of Whitehall	State of Mont
US Postal Service - Whitehall	15 N Main, Whitehall	Federal
- Cardwell	Cardwell	Federal
- Basin	100 Basin St, Basin	Federal
- Boulder	126 S Main, Boulder	Federal
- Jefferson City	Jefferson City	Federal
- Clancy	1 N Main ,Clancy	Federal
Rural Development Forest Service Ranger Station Natural Resources Farm Services	3 Whitetail Road Whitehall	Federal

The following maps of Jefferson County Communities provide the location of critical facilities, public and private buildings, and county infrastructure:

Jefferson Valley



Map 1

City of Boulder

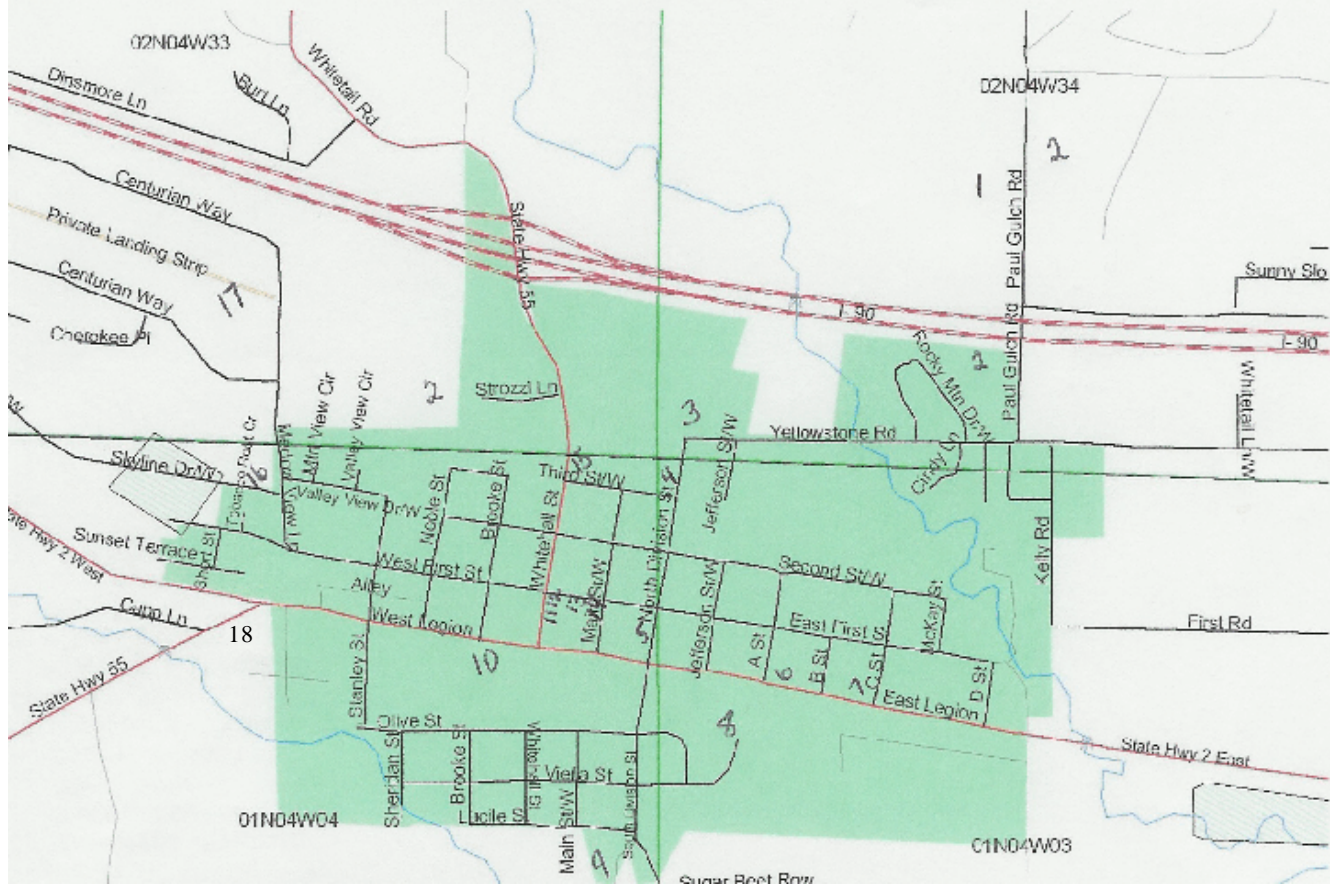


Legend

- | | |
|---------------------------------|-----------------------------------|
| 1. Water towers | 13. DOT Shop |
| 2. City Hall | 14. Bull Mountain Fire #1 |
| 3. City Shop | 15. Senior Citizens |
| 4. Post Office | 16. Grade School |
| 5. Library | 17. Courthouse |
| 6. Medical Clinic/Public Health | 18. Courthouse Annex #1 |
| 7. High School | 19. Courthouse Annex#2 |
| 8. MDC | 20. Law & Justice Center-Jail-EOC |
| 9. AYA | 21. Fire Hall |
| 10. Riverside Corrections | 22. Ambulance |
| 11. Fairgrounds | |
| 12. County Shop | |

Map 2

Town of Whitehall

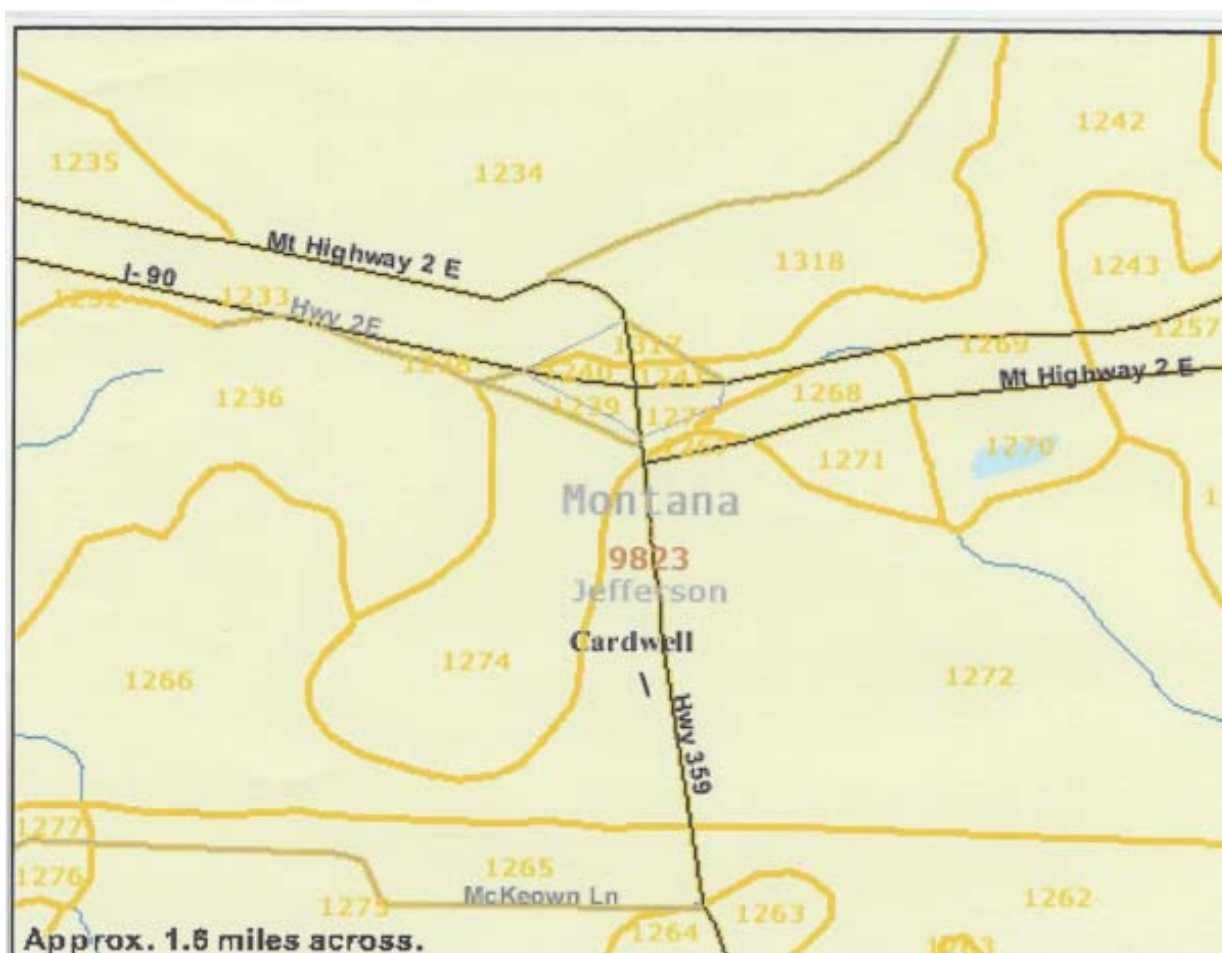


Legend:

- | | |
|--------------------------|---------------------------------------|
| 1. Transfer Station | 10. Fire Hall |
| 2. Water Towers (3) | 11. Town Hall-Jail-Ambulance Garage |
| 3. High School | 12. Library |
| 4. Grade School | 13. Clinic |
| 5. Senior Citizen Center | 14. Post Office |
| 6. Town Shop | 15. Golden Garden Assisted Living |
| 7. County Extension | 16. Meadow Lark Manor Assisted Living |
| 8. County Shop | 17. Airport |
| 9. Museum | 18. Brain Injury Treatment |

Map 3

Cardwell

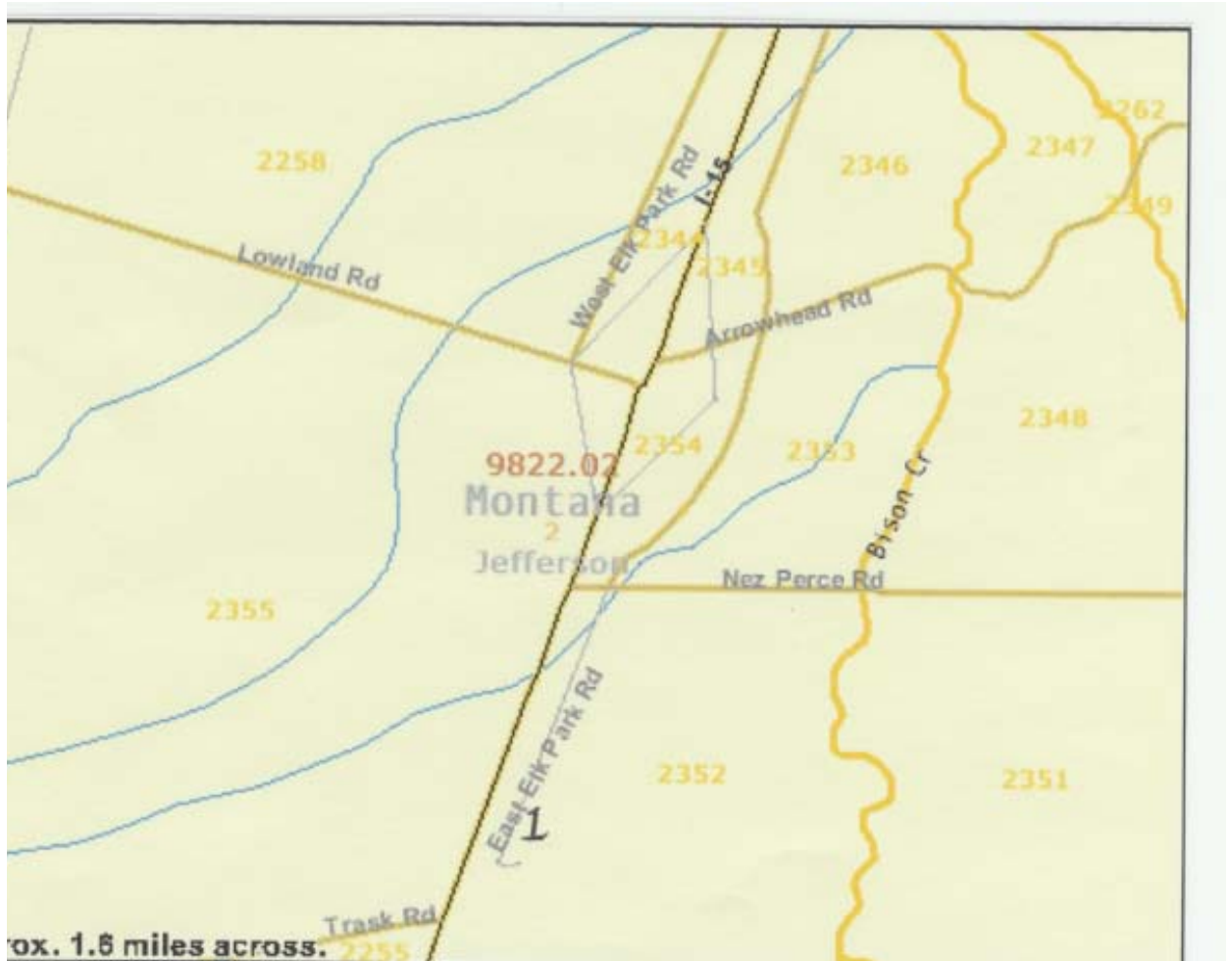


Legend:

1. Post Office

Map 4

Elk Park

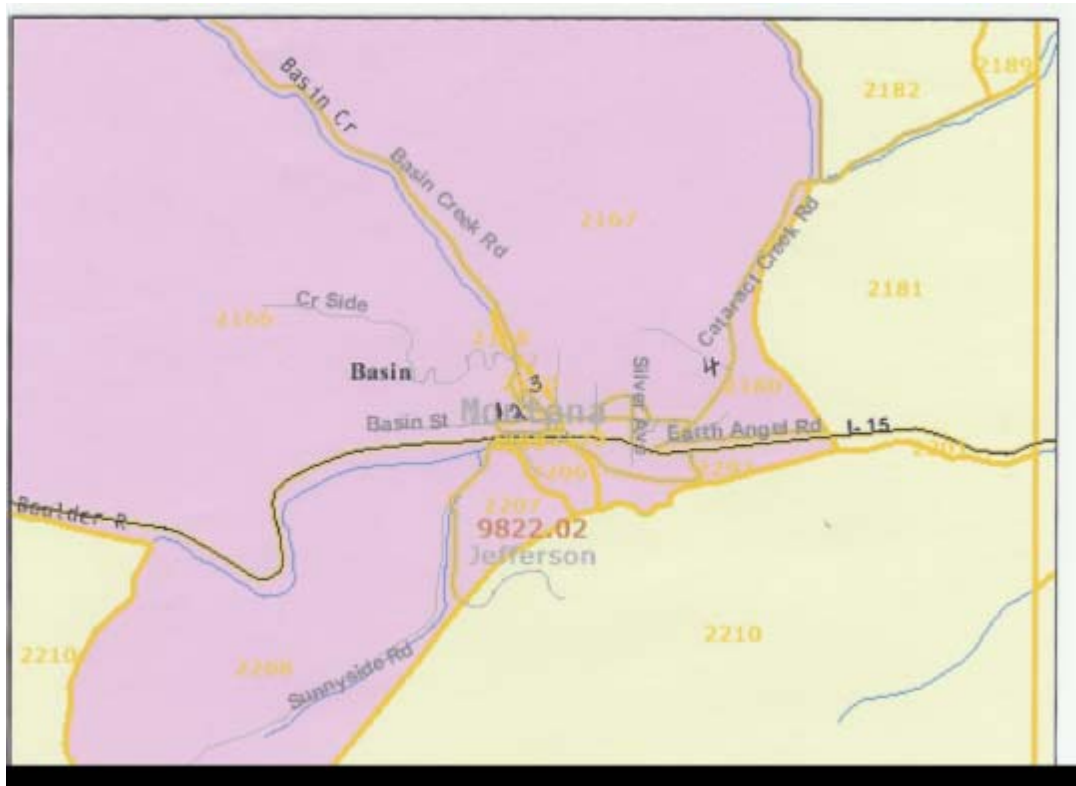


Legend:

1. Fire Hall

Map 5

Basin

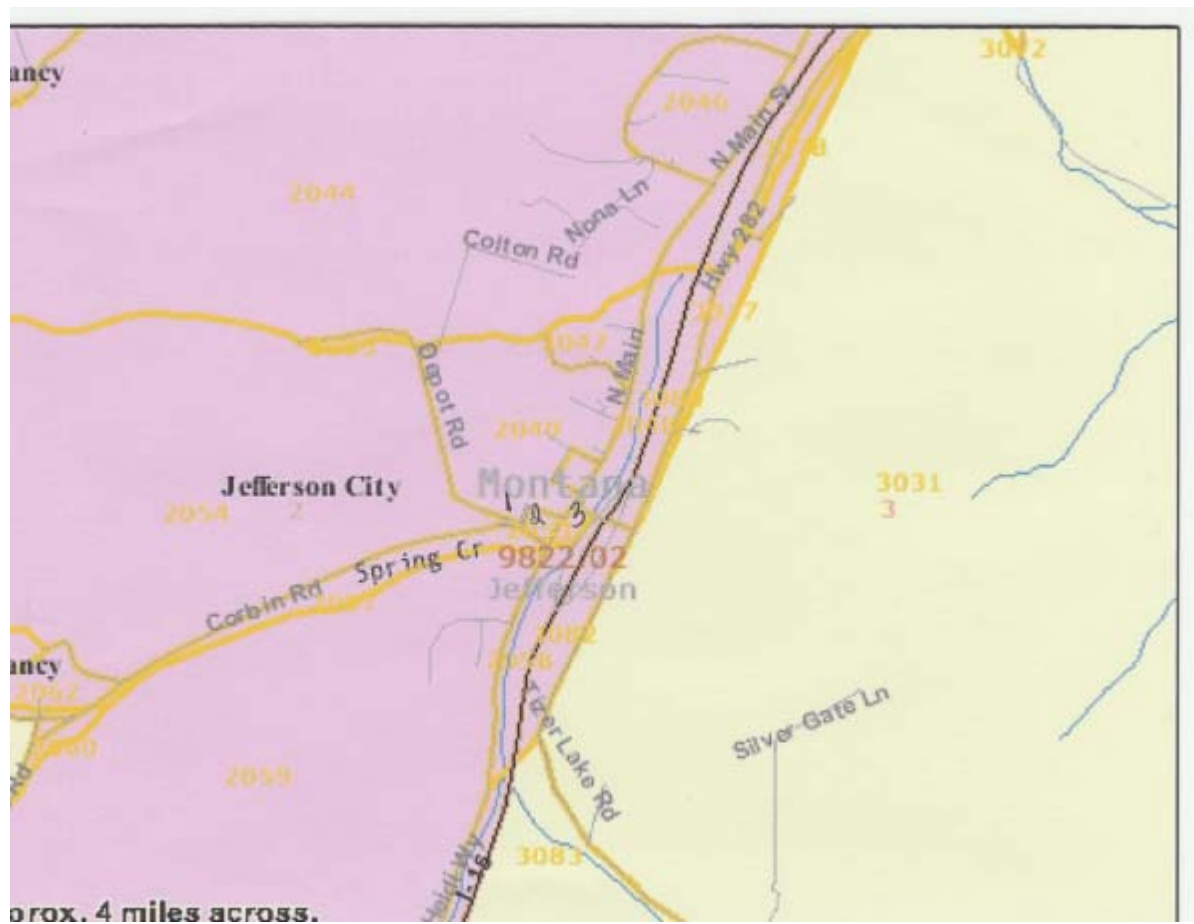


Legend:

1. Post Office
2. Fire Hall
3. Grade School
4. Transfer Station

Map 6

Jefferson City

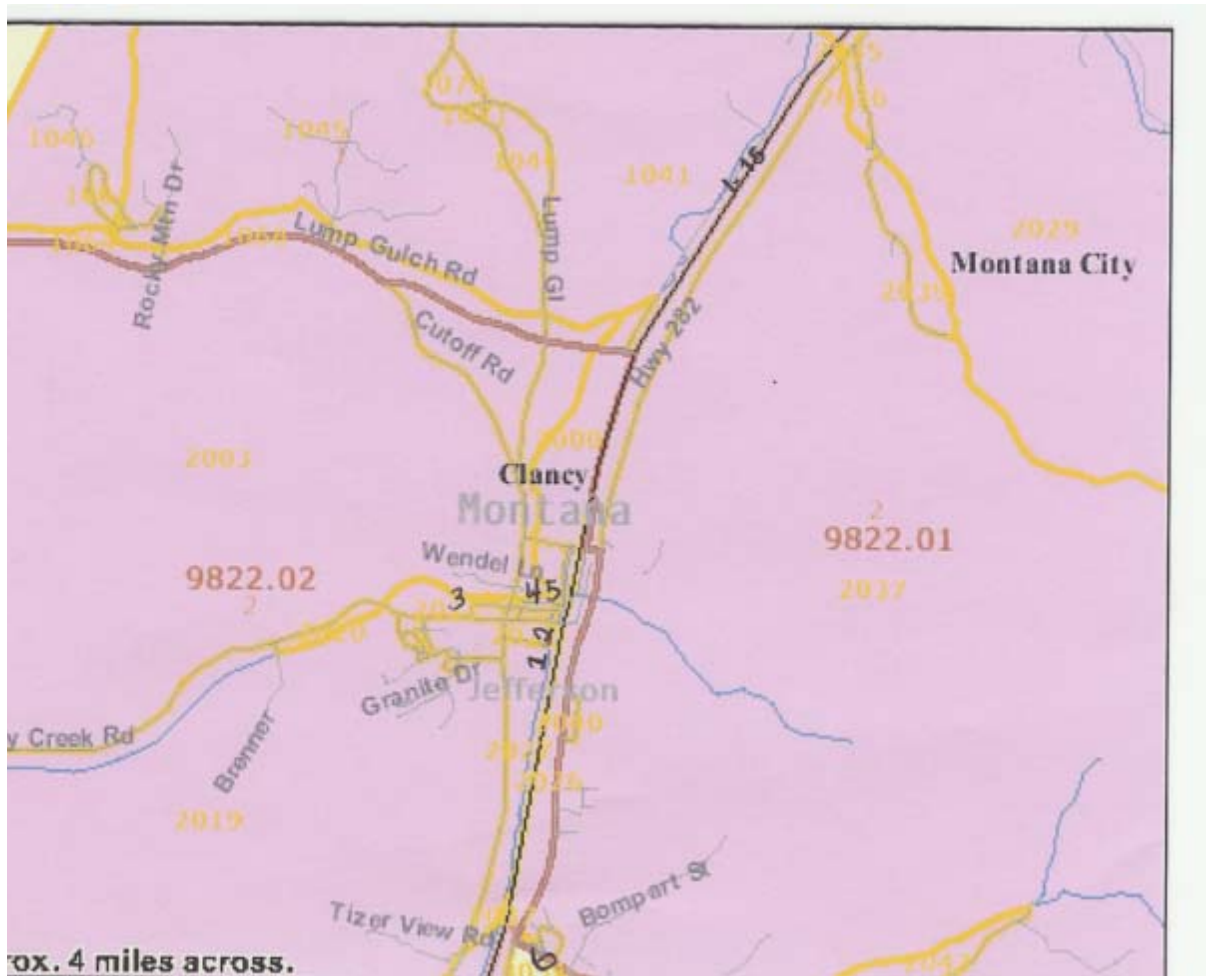


Legend:

1. Transfer Station
2. Fire Hall
3. Post Office

Map 7

Clancy

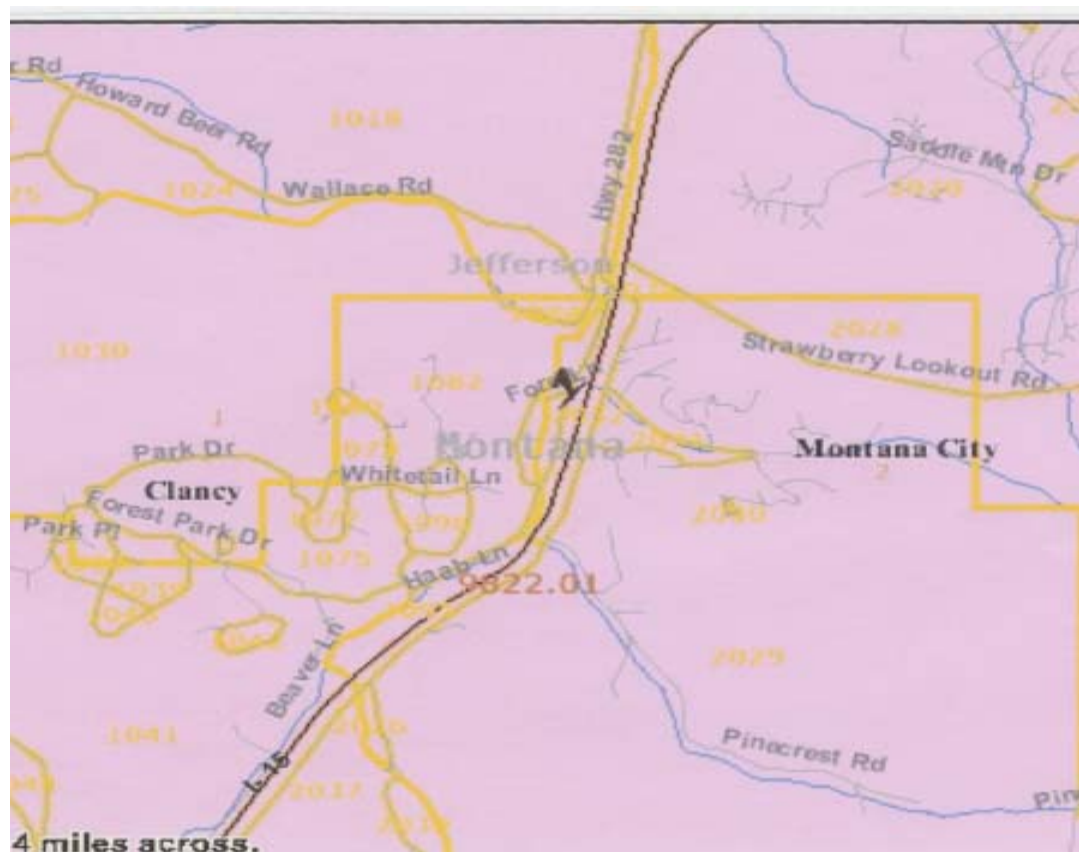


Legend:

1. Search & Rescue
2. Fire Station #1
3. Grade School
4. Museum
5. Post Office
6. Evergreen Nursing Home

Map 8

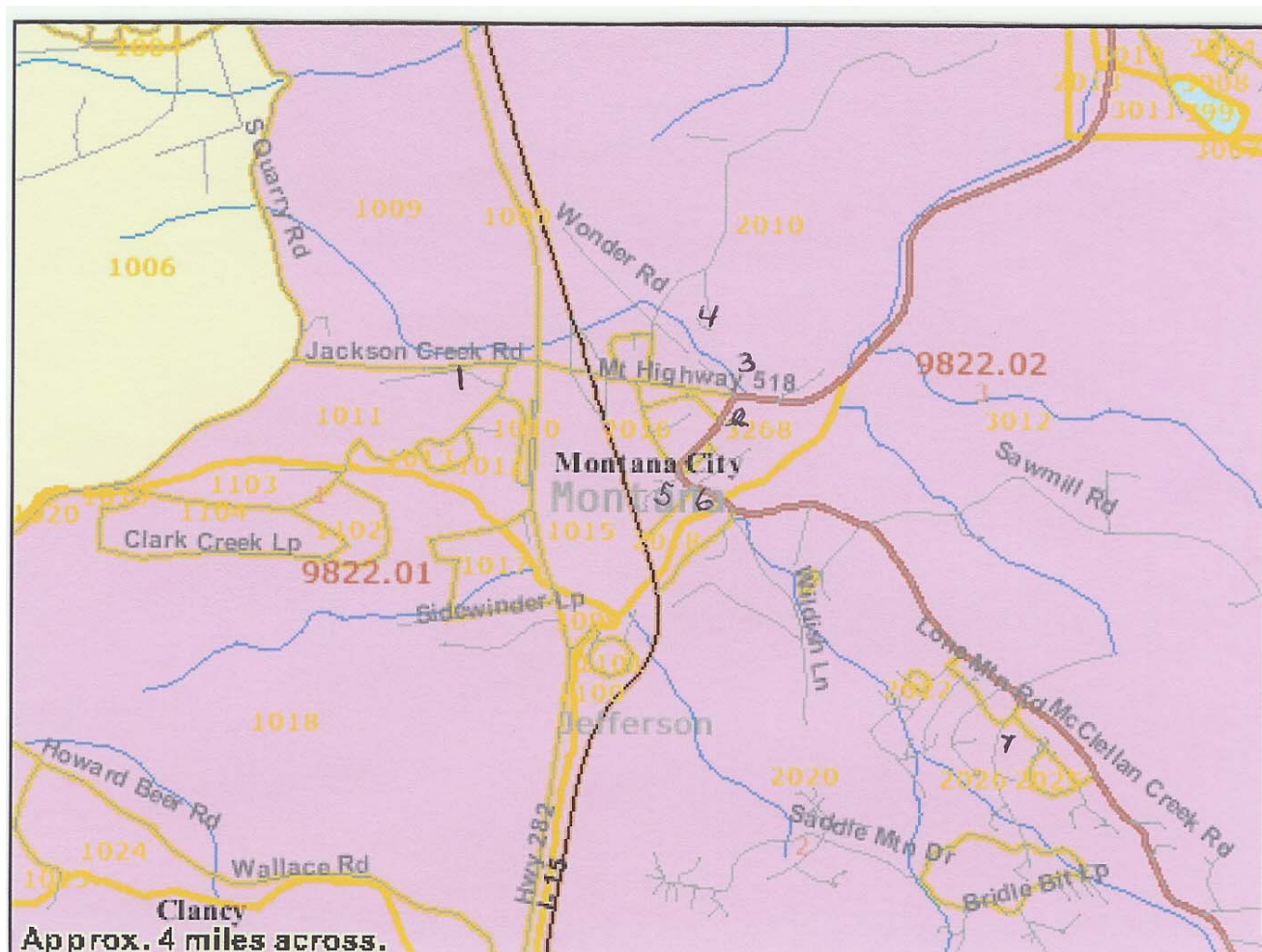
Hanging Tree



Legend:

1. Clancy Fire Station #2

Montana City



Legend:

1. Fire Station #2
2. Grade School
3. Quality Life Assisted Living
4. The Homestead Place Assisted Living
5. Transfer Station
6. County Shop
7. Fire Station #1

Map 10

In terms of the County infrastructure, information outlining specific private infrastructures was not requested. Northwestern Energy and Vigilante Electric operate electric transmission lines and Quest controls telephone lines within the County. A large cross-country electrical transmission line to the West Coast transits the county from the Broadwater County/Jefferson County line to the Jefferson County/Powell County line. Several cellular telephone towers owned by various entities are also located throughout the County. The County has a limited system of natural gas lines; therefore, many residents rely on propane for heat.

Public water and sewer services exist in Boulder, Basin and Whitehall, but many subdivisions operate their own water systems. The interstate highway system includes both Interstate -15 (I-15) and I-90, which are in generally good condition or in the process of being resurfaced. The state roads are paved and in good condition. Most of the City of Boulder and Town of Whitehall streets are paved. Nearly 200 miles of county maintained roads are both black top and gravel in fair condition. There are many bridges in the County maintained by the various jurisdictions.

In addition to the critical facilities, residences; businesses and other facilities are also vulnerable to these hazards. The population of Jefferson County is 10,499 with 4167 housing units. The median value of owner occupied housing units is \$128,700. There are 209 private, non-farm establishments with paid employees, and an additional 850 non-employer establishments. These statistics are derived from *Annual Estimates of Housing Units for Counties in Montana: April 1, 2000 to July 1, 2003* (HU-EST-2003-04-30), 2000 Census of Population and Housing, Population Division, U.S. Census Bureau.

The recent experiences of fires and floods in Jefferson County demonstrate that the greatest asset within this County are the residents themselves as the outpouring of assistance from them, before and during an emergency, provides even an additional level of security.

The Jefferson County Sheriff's department is staffed with highly trained and motivated officers who make response and assistance available in all areas of the County. The 911 Center and the detention center are both housed in the Sheriff's office. There is a Sheriff's Reserve Corp of volunteers who fill in during scheduled events and emergencies as shifts are short staffed. Two volunteer Search and Rescue Units are also under the Sheriff. These volunteers are trained and equipped to assist in a variety of incidents when called. The individuals in these two groups provide most of their own equipment as there is currently little financial support from the general fund. In addition, Boulder and Whitehall each maintain a Police Department.

The County has volunteer fire departments in each population area. These fire departments range from very well equipped and trained, to those that need more equipment and training.

There are three ambulance services and two quick response medical units in the County. One of the ambulance services is private and the other two are operate by the incorporated communities of Boulder and Whitehall. The quick response units are volunteers, but receive some funding from the County to purchase equipment and supplies. Primarily, these volunteer ambulance services are funded by billing for services. Yet, Homeland Security Department funding is becoming available to help equip and train the individuals of the quick

response units. This funding is primarily aimed at incidents involving terrorism, except the equipment will be available for all hazards.

There are also small clinics in Boulder and in Whitehall. However, general hospital services are located outside the County borders.

Because the growing population of Jefferson County consists of individuals coming from areas where fire and emergency medical response are provided, it is an education and recruiting challenge to maintain the necessary volunteers. The number of hours required to obtain and maintain the necessary level of training makes it even more difficult. Consequently, fire departments and emergency medical services are in dire need of volunteers, and this will be addressed as a project in this Plan.

Additional assets include the County and state road departments and state and federal agencies with personnel or stations located within the county including, US Forest Service, Fish, Wildlife & Parks, and Montana Highway Patrol.

CHAPTER IV

Profiling Hazard Events

For the purposes of preparing the Pre-Disaster Hazard Mitigation Plan for Jefferson County the following four events, out of the sixteen potential hazard events identified in Chapter 3, are determined the most likely to occur and have the greatest effect on the county: wildland fire, earthquake, flood and a hazardous materials incident. At the public meetings attending county and town officials and representatives, emergency personnel and community citizens prioritized the hazards by determining which had caused prior fatalities, resulted in property damage and economic hardship, and had the greatest potential to cause such in the future.

A. Wildland Fire

The current drought is a major contributor to the wildland fire potential. The Tri-County Fire Working Group has mapped north Jefferson County, the Elk Park and Rader Creek areas in south Jefferson County to show severe and high fuel hazard areas (Maps 11-13, pp 31-33). There are more than 50 major and minor subdivisions within the project area. Access to some of the older sub-divisions is restricted by single ingress/egress roads constructed with the original developments. Although, some of subdivisions have identified water sources, there is not enough to provide any real defense in the event of a wildland fire.

The fire fuel hazard mapping has not been completed, but provides enough information to get started with this Plan. Areas not yet mapped include the community of Basin, many subdivisions and residences along county roads areas, and the ghost town of Elk Horn that are in severe to high areas.

Wildland fire mitigation will be a huge task for Jefferson County. Headwaters RC&D is in the process of hiring contractors to write new County Fire Plans for counties in South West Montana including Jefferson County. As soon as the new Fire Plan is completed it will be annexed to this Plan.

The structures in Jefferson County most vulnerable to wildland fire are private residences. The residences identified in this sampling are located in the severe and high-risk fuel hazard areas that have been mapped by the Tri-County Fire Working Group.

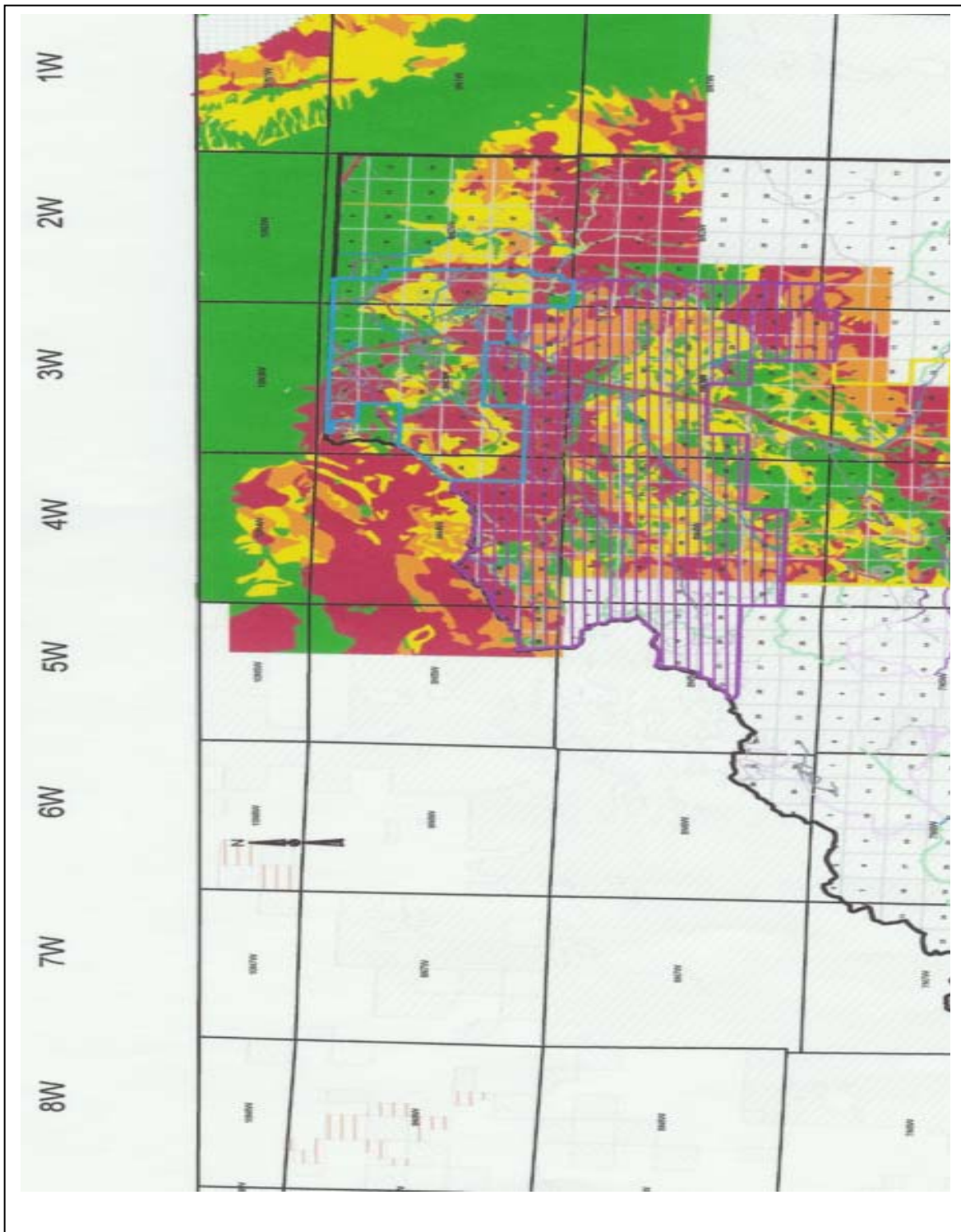
Home values in the severe and high risk areas were based on actual construction using an estimated average square footage and the FEMA How-to Guide, *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA 386-2) for valuation of \$77 per square for single family dwellings and \$52 per square foot for mobile homes. The contents replacement valuation is placed at 50% of the residential building value.

Table 5

Home Values in High and Severe Risk Areas

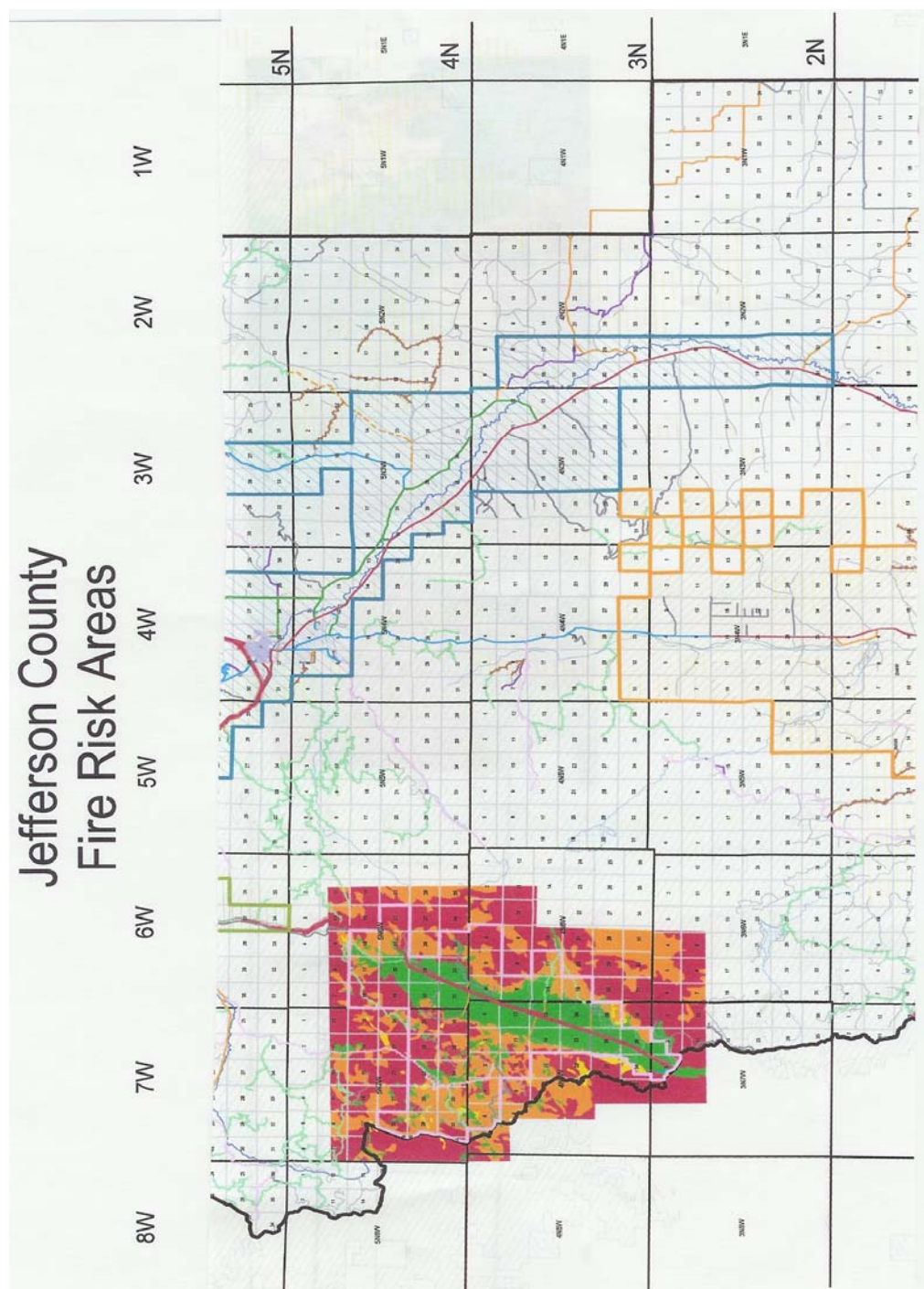
Location	Res.	Average Square Footage	Replacement Cost	
			Structure	Contents
South Hills/Cross Fire /Pronghorn Hills Areas	41	4000 @ \$77	\$308,000	\$154,000
Hills Brothers area	11	3000 @ \$77	\$231,000	\$115,500
Saddle Mountain	135	2700 @ \$77	\$207,900	\$103,950
Blue Sky Heights/Forest Park Estates		2500 @ \$77	\$192,500	\$ 96,250
Gruber Estates	65	3500 @ \$77	\$269,500	\$134,750
Halford/Liverpool/Ohil Gulch/Rocky Mountain - Lump Gulch	31	2700 @ \$77	\$207,900	\$103,950
Finn Gulch	17	1300 @ \$52	\$70,200	\$45,100
Upper and Lower Rader Creek	99	1700 @ \$69	\$117,000	\$58,500

North Jefferson County Fuel Hazard Risk



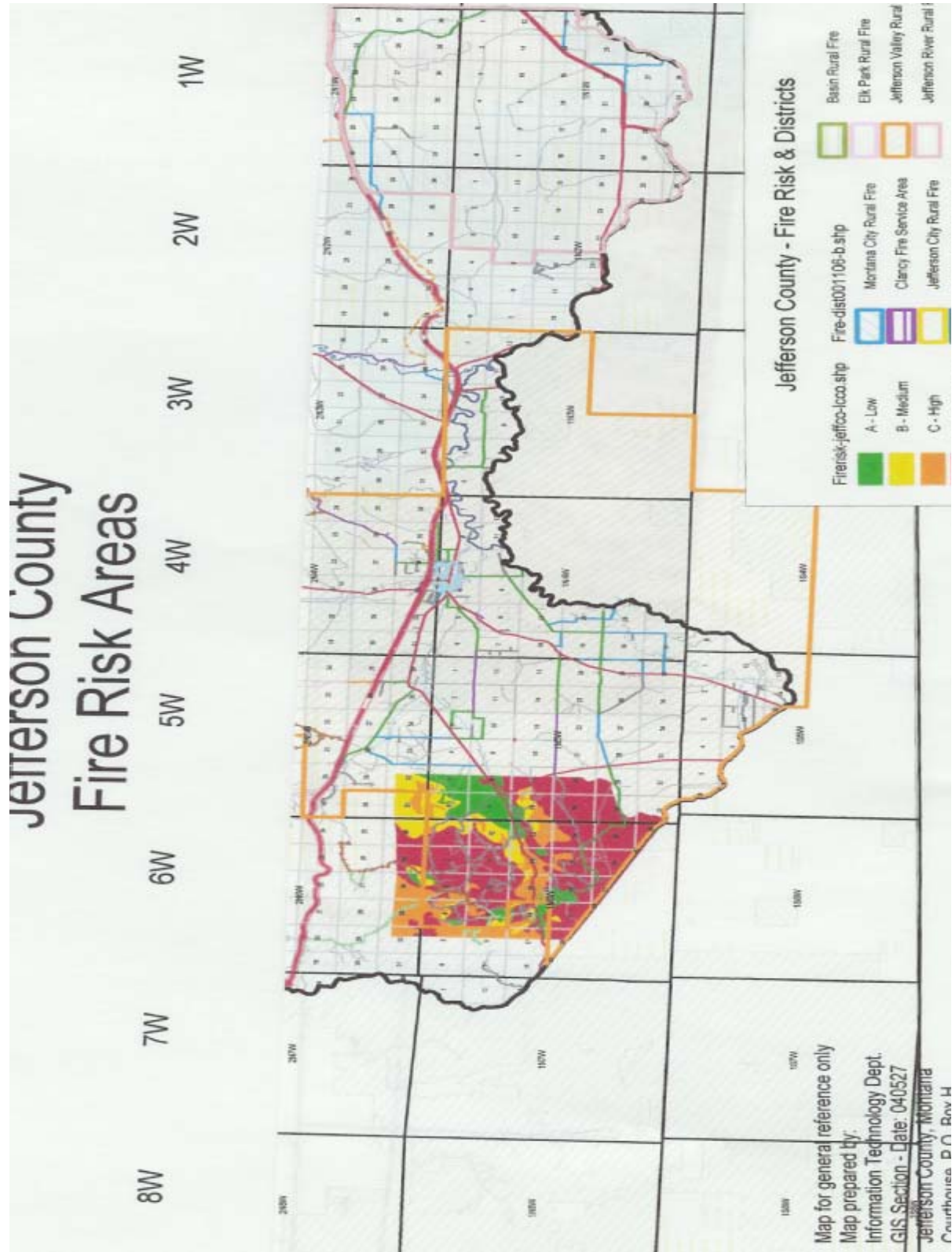
Map 11

Elk Park Fuel Hazard Risk



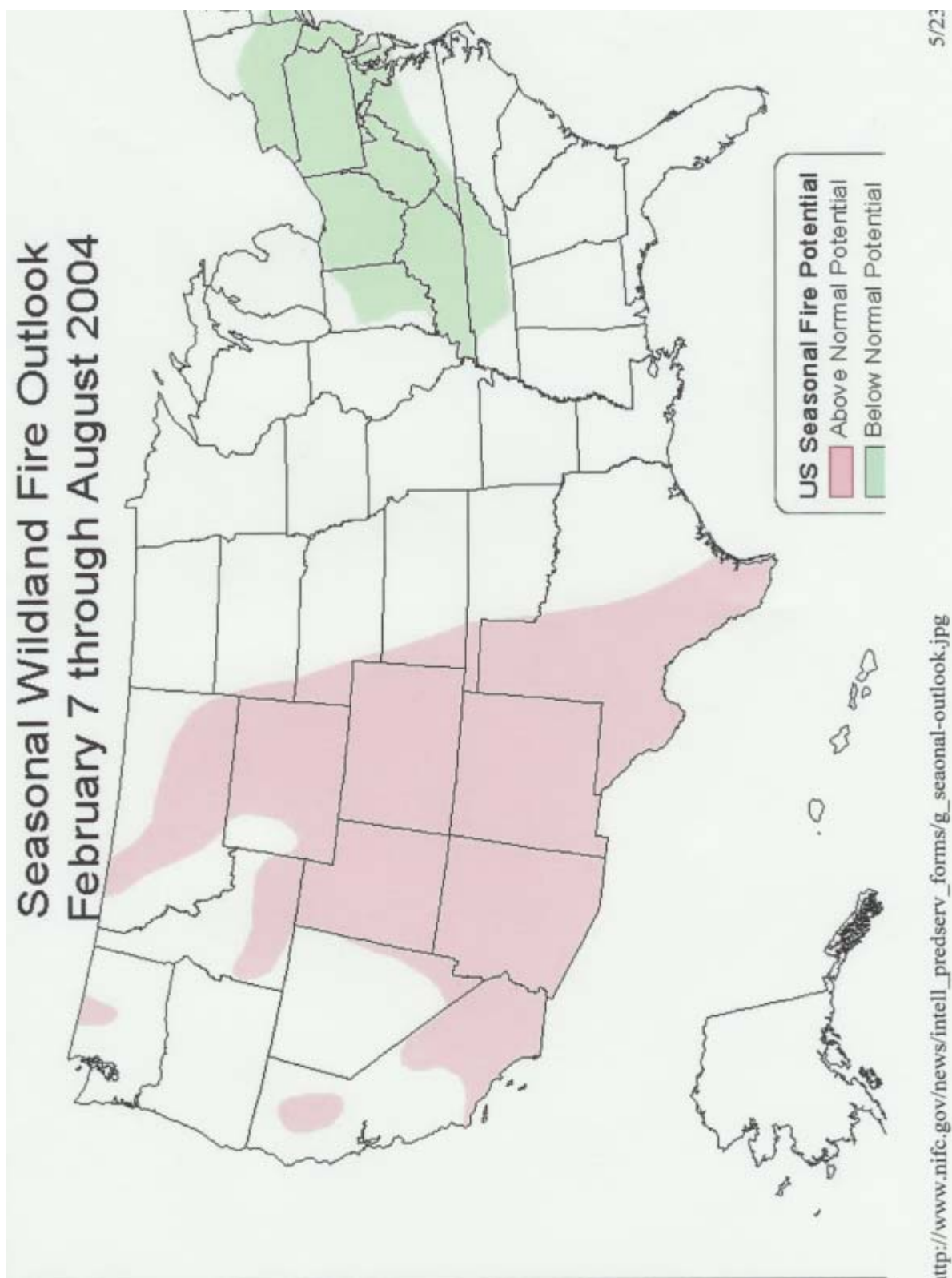
Map 12

Rader Creek Fuel Hazard Risk



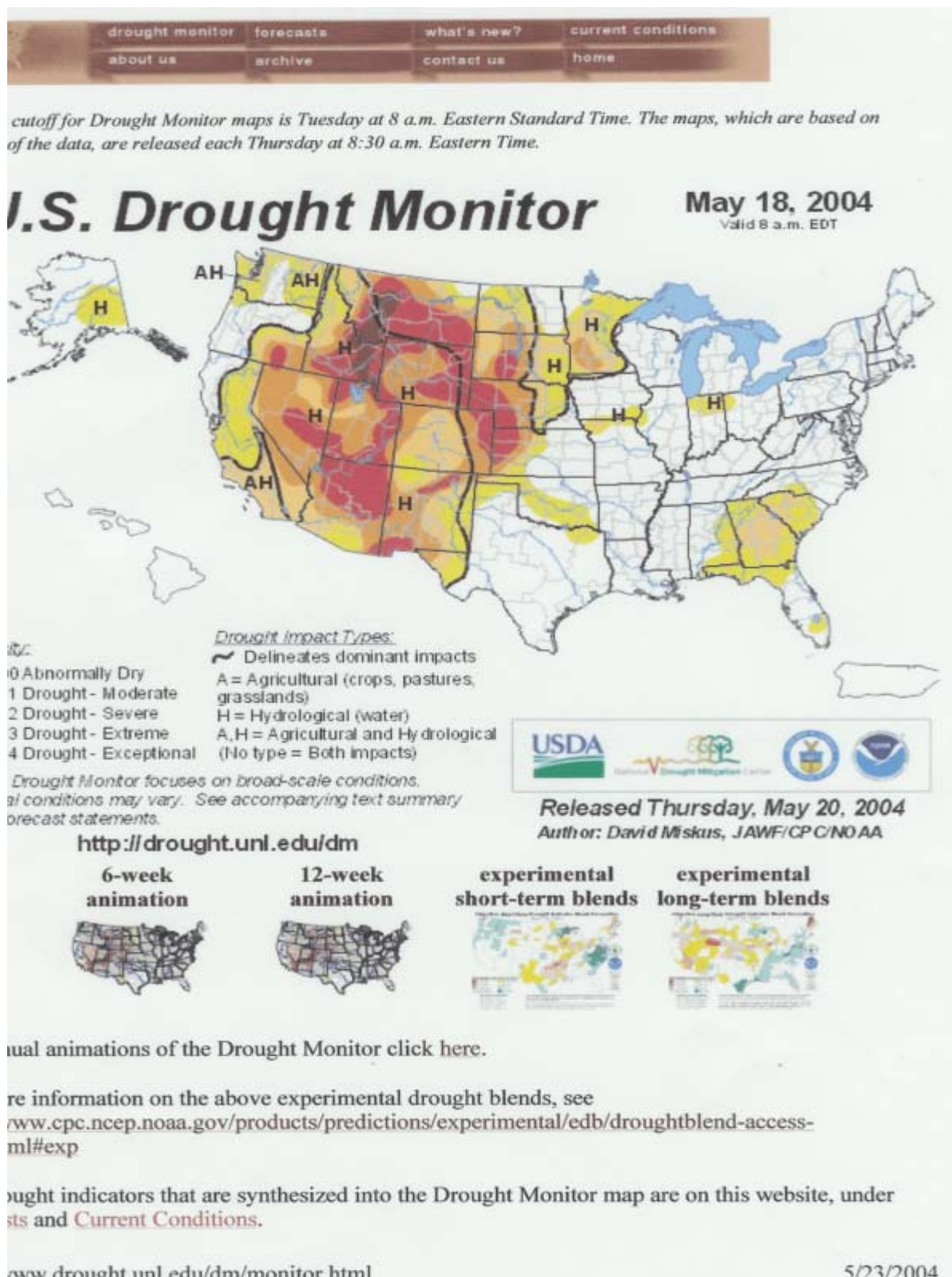
Map 13

Seasonal Wildland Fire Outlook



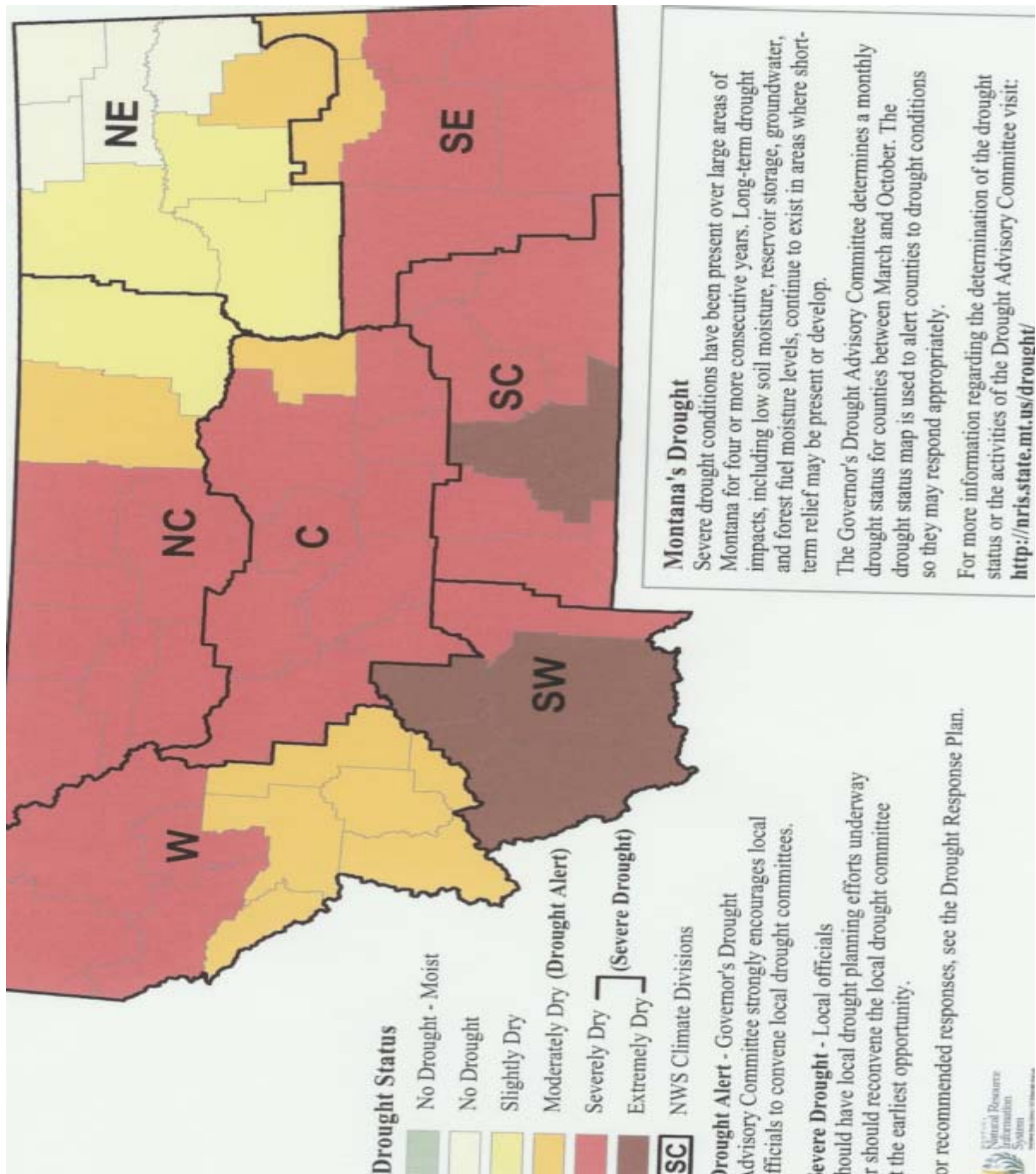
Map 14

U.S. Drought Monitor



Map 15

Montana Drought Conditions



Map 16

B. Earthquake

Portions of Jefferson County are located on earthquake faults. The Continental Fault connects with the Elk Park Fault in Elk Park. The Jefferson Valley Fault and one, which is not named that runs in the approximate area of the Boulder River north of the Jefferson Valley Fault, are across the mountains on the valley side of the County. (Map 17, p29)

The large earthquakes of 1925, near Clarkston – magnitude 6.6, and 1935, near Helena – magnitude 6.3, caused some damage to Jefferson County residences. There was another in 1947, near Virginia City –magnitude 6.1, which jarred foundations in Jefferson County, but did little other damage. However, the August 1959 multiple earthquakes –magnitudes 5.6 to 7.5, which centered near Hebgen Lake by Yellowstone Park, produced some damage in locations throughout Jefferson County. In Whitehall the town "rocks and rolls", "the water tank was doing quite a jig," and bricks broke loose, chimneys toppled, ceiling plaster cracked and windows were broken. Furthermore, there has been a series of "quakes" in the 5.5 to 5.9 magnitude during 1964, 1975, and 1976 near Yellowstone that have been felt in Jefferson County with little or no damage experienced. (See Map 17, p29)

There are many earthquakes every year, but most of them are so minor that most people do not feel them. Montana Tech College in Butte has an active seismology department that conducts many related studies.

Critical Infrastructures as identified on Tables 2, 3 & 4 (pp13-16) include a number of older buildings including the Jefferson County Courthouse, which is a four level 15,688 square foot building constructed of brick in 1888, and it has already withstood at least four strong earthquakes.

The buildings not included in the Critical Infrastructure tables are businesses on the main streets of Boulder, Whitehall and Basin, which also were built of brick in the late 1880s and that have survived a number of large earthquakes.

The Cardwell and Basin schools are both older two (2)-story buildings that have survived earthquake events in the past.

There are vulnerable structures and infrastructure in Boulder and Whitehall that have withstood earthquake events in the past and may or may not withstand those of the future. The County government in Boulder has expanded into an annex located on the same property, the Law & Justice Center and a home converted to offices across the street. Additionally, there are three county shops, one each located in Whitehall, Boulder and Montana City.

Within the City of Boulder, in addition to the county buildings, the State of Montana maintains several single story buildings. There is a residence for developmentally disabled individuals at the Montana Developmental Center, and a juvenile female detention center at the Riverside Correctional facility. It is not known how an earthquake might affect these structures.

The City of Boulder infrastructure includes a newly renovated water distribution network that

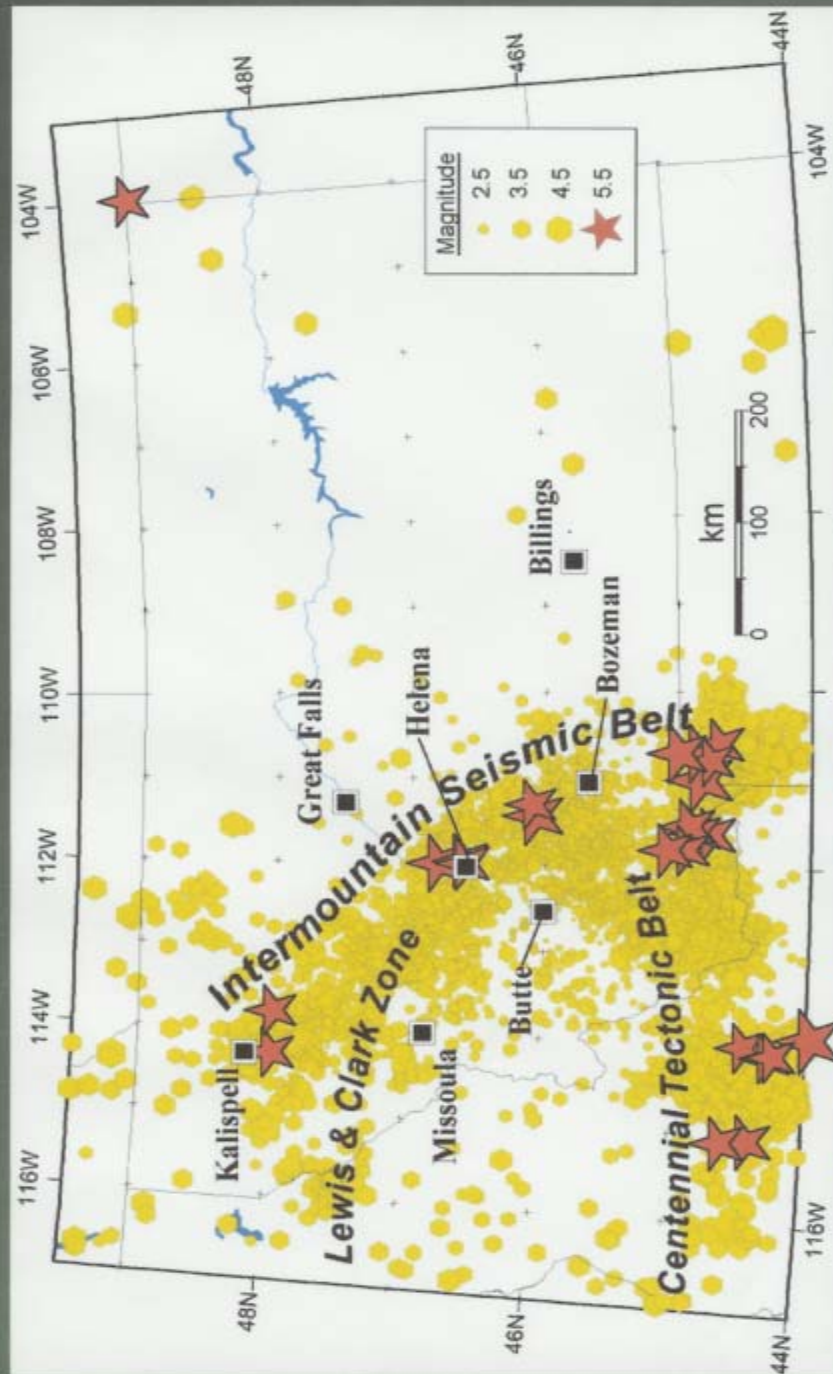
is fed by four pumps that keep the system full with the excess sent to a large holding tank on a hill north and east of town. The sewer system was installed in the late 50's and is due for replacement. The sewage treatment consists of a lagoon system located on the south edge of town. An 18-mile paved renovation of Main Street completed in 2003 includes a storm drain system that empties east of town.

There are several homes in Boulder that were constructed in the early to middle 1900s that are two stories. Several of these also withstood the 3 major earthquakes experienced in this area over the years. However, if an earthquake with an epicenter nearer to the town were experienced, it is not known how many of these structures would remain standing.

The Town of Whitehall infrastructure includes a water system, 80% of which was replaced during 1995 to 1998. The system consists of two operational wells that pump through the distribution system with the excess going into a 500,000-gallon storage tank. The sewer system was installed during the late 1950's and early 1960's with upgrades to the treatment ponds. Furthermore, Whitehall maintains 12 miles of streets with 1.5 miles still unpaved. In addition the Whitehall middle and high school buildings are single story modern construction and should withstand earthquake events of the magnitudes experienced in the past.

Southwest Montana Earthquake Occurrence

Earthquake Occurrence



Map 17

C. Floods

Flooding has been an historical challenge in Jefferson County with the Jefferson, Boulder, and Little Boulder rivers and Prickly Pear Creek overflowing their banks in times of high water and ice jams. In 1948, channel work was done on the Jefferson River near Willow Creek to protect the Willow Creek Bridge and its approaches. The Milligan Canyon Road has washed out a number of times since 1981 and most recently in 2002. This hazard has been addressed in a flood plain review and plan.

There are emergency plans on file in the DES Office for some of the larger dams in Jefferson County as well as for some dams located outside of the County. There are several man-made dams, mostly located in the South end of the County.

Some floodplains of the County are developed and the potential for flooding in those areas could be severe. Most of these are in the Whitehall/Cardwell area; e.g., McKeown Lane, Piedmont and Waterloo. Additionally, there are structures in the Pipestone Creek drainage and along the Boulder River as it flows past Basin near Valley Street that could be affected.

The flood of 1981 caused much damage to the highway between Boulder and Basin, Cataract Road, Basin Creek Road and access to the roads along Prickly Pear Creek. Significant “rip rap” work was done when the repairs were accomplished, and the area is now much better protected. However, a large snow pack and heavy spring rains could bring water out of the Elk Horn Mountains and cause flooding from Jefferson City north to East Helena, and then Helena Valley along Prickly Pear Creek. (Photos 1 – 14, pp 41-47)

The Boulder River runs along the south side of Boulder just inside the city limits and two private irrigation ditches bisect the town.

The construction of I-15 north and west of Boulder created increasing problems with water run off causing flooding in the northwest portion of the Boulder community. The installation of the new storm drain system in 2003 should minimize this risk.

There are two irrigation ditches that border the east and west side of the Town of Whitehall. In the past these have caused flooding problems. The west ditch has been cleaned and old irrigation dams removed, which has alleviated the flooding in that area. Although there is no significant history of flooding here, still more should be done at the east side of town to further mitigate flooding potential.

Post flood - High Ore Road



Photo 1

Post flood - Cataract Creek Road at Saturday Night Hill



Photo 2

I-15 Boulder to Basin



Photo 3

Near Boulder River Bridge - West



Photo 4

Boulder River Bridge



Photo 5

Montana DOT and MDC



Photo 6

Aerial view of Sewer Lagoons, MDC and Boulder



Photo 7

Hwy 69 Elk Horn Turn Off



Photo 8

Lower Boulder Valley



Photo 9

Dunn Canyon Bridge



Photo 10

Nigger Hollow Bridge



Photo 11

I-15 Jefferson City Rest Area



Photo 12

Clancy Interchange



Photo 13

Haab Lane (Hanging Tree Road)



Photo 14

D. Hazardous Materials (HAZMAT)

Although there is no history of significant incidents, the potential of a hazardous materials incident in Jefferson County is as pronounced as the next semi-truck and trailer driving down any of the number of highways and roads in the County. (Photo 16) There are so many variables that it is difficult to determine if, when or where the next incident might occur.

In all areas of Jefferson County the buildings and people, are in close proximity to any one of the roads and highways that network through the County. An accidental release of HAZMAT could produce a health episode to those in the immediate and downwind areas.

Interstate -15 crosses Jefferson County from the Jefferson County/Lewis & Clark County line south to Boulder and west to the Butte/Silver Bow County Line. Interstate -90 crosses Jefferson County from the Butte/Silver Bow County line and goes east to the Broadwater County line out of Three Forks. Montana Highway 2 (Montana 2) parallels I-90 and west of Whitehall Montana 41 leaves Montana 2 at Cactus Junction and connects with Montana 55 north of Silver Star in Madison County. East of Cardwell Montana 2 runs east past the Lewis and Clark Caverns to the Sappington junction with U.S. 287 and on to the county line.

Montana 69 starts at the Whitehall exit from I-90 and ends just north of Boulder at the entrance to I-15, and continues through the city limits as Main Street. Montana 55 goes south from Whitehall to the Jefferson, Madison and Butte/Silver Bow lines south of Whitehall.

Montana Rail Link Railroad track runs from Helena to Logan and parallels U.S. Highway 12 in eastern Jefferson County and a spur line runs from Logan to Whitehall parallel to Division Street. (Map 18 and Photo 18) Montana 518 runs south from East Helena to Montana City and County Road 282 is the frontage road from Jefferson City north to East Helena.

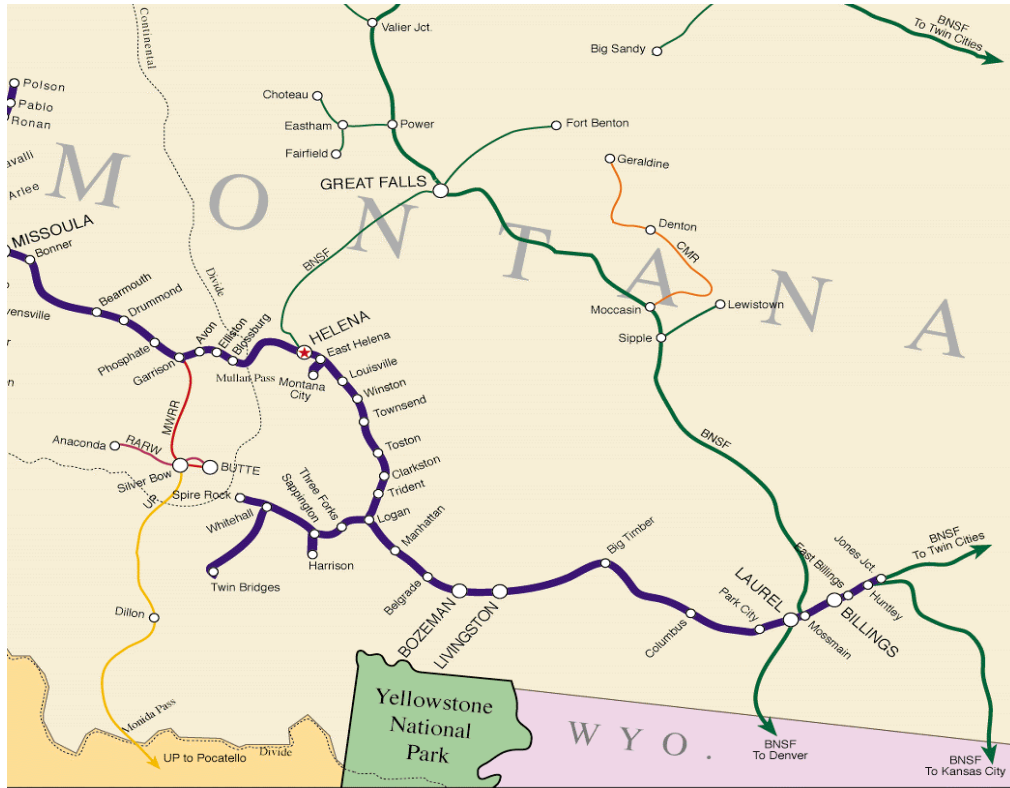
Non-agriculture/livestock industry is limited in Jefferson County, however, there are two (2) gold mines and a cement plant and other privately owned facilities reporting under the federal Superfund laws. The free standing law under the Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, the Emergency Planning and Community Right to Know Act, requires these industries to provide the State of Montana and local governments with information concerning potential chemical hazards present in their communities.

Private use of hazardous materials also is present through out the County. For example, there are fixed sites where distributors of propane for personal use have installed large propane tanks and, there are farmers and ranchers who stock supplies of chemicals for fertilizer and weed or pest control. (Photos 15 and 17)

The other possible exposure of hazardous materials would come with a terrorist event with the use of biological or chemical agents. These biological or chemical agents could be induced into the human or animal population in any number of ways.

Because the possibility of a hazardous materials incident exists and the potential damage so great, this discussion of a potential release of this type has been included in the Plan.

Montana Rail Link



Map 18

Propane Distribution Tank in South County



Photo 15

Gasoline Tanker Truck



Photo 16

Hazardous Farm Materials



Photo 17

Rail Transportation of Hazardous Materials



Photo 18

Chapter V

Mitigation Projects

A. Mitigation Goals and Objectives

Goal 1: Reduce the impact of wildland fires on the community.

Objective 1.1: Protect homes and evacuation routes in the wildland-urban interface from wildfires as part of the County Fire Plan.

Objective 1.2: Develop and implement a fire hazard mapping project.

Objective 1.3: Support the Tri-County Fire Working Group programs to assist county property owners' projects.

Objective 1.4: Support volunteer fire department fire prevention activities.

Goal 2: Minimize damage from earthquakes.

Objective 2.1: Better understand the earthquake hazard in Jefferson County.

- In-depth fault study and digital mapping
- Educational awareness for the general public on the earthquake hazard

Objective 2.2: Protect County students from earthquake hazards

- Using shatter-proofing techniques, strengthen windows in schools
- Secure objects in schools that could fall during an earthquake
- Educational awareness for students on earthquake safety

Objective 2.3: Promote greater structure safety in fault areas.

- Develop construction policies where probability of earthquakes is discovered to be highest.

Goal 3: Reduces losses from flooding.

Objective 3.1: Prevent losses to Jefferson County infrastructure from flooding.

- Install culverts and upgrade streets and roads for runoff management
- Improve storm water systems in poor drainage areas

Objective 3.2: Prevent losses due to flooding in chronic flood areas

- Fund completed study projects

Goal 4: Develop a Public Alert FM radio system that can reach all citizens during any hazard event.

Objective 4.1: Obtain permits and address all FCC rules for low power FM .

Objective 4.2: Develop computer controlled transmission systems to provide information services

- Include road reports, weather forecasts and conditions, emergency conditions and events, and public services.

Objective 4.3: Develop local programming to provide continuous transmission.

Goal 5: Increase Emergency Response Capability.

Objective 1.1: Recruit and train emergency response personnel.

Goal 6: Educate County citizens to cope with a potential disaster event.

Objective 1.1: Develop disaster related educational programs through the county school system.

B. Identifying Mitigation Projects

Mitigation strategy is the course of action taken to minimize losses from disasters in the future. Rather than wait until a disaster occurs, the strategy is to move in a proactive direction with disaster prevention. All losses cannot be entirely prevented, however, some actions can be taken as funding and opportunities become available that may reduce the impacts of disasters and eventually save taxpayers' money.

1. Wildland Fire

The County Fire Plan is being updated, and with the assistance of the Bureau of Land Management (BLM), this project is scheduled for completion by the end of 2004.

Complete the Fire Fuel Hazard Mapping project. Continue promotion of residential fuel mitigation projects in the severe and high fire hazard risk areas identified in Maps 11-13, pp 31-33. Provide property owner collaborated sample "how to" prescriptions for individual homeowners. Take on fire fuel hazard modification projects for evacuation/transportation routes in severe and high fuel hazard areas. Encourage extension of fuel modification projects of the Forest Service and Department of Natural Resources Conservation (DNRC) and BLM to private lands.

Tri-County Fire Working Group is continuing to obtain funding to assist property owners with financing for these projects.

Implement the requirement for dry hydrants identified by the rural fire personnel in their response areas: Bull Mountain - Sloan's Lane, Red Bridge on Hubbard Lane, White Bridge between Hwy 69 and Lower Valley Road; Basin - Bernice, High Ore and Basin; Jefferson City - Rosewood Estates, South of Jefferson City where Prickly Pear crosses under I-15; Clancy -

Clancy Creek, Warm Springs Creek, two (2) on Lump Gulch, Travis Creek; Montana City - Montana City School, Ashgrove Cement Plant and the end of Jackson Creek.

Implement projects to provide water supply sources that meet state and national standards for severe to high fire fuel hazard areas or areas with limited capability or water availability.

2. Earthquake

Complete an in-depth fault study of Jefferson County and finish digital mapping of County assets. Complete a study to determine earthquake readiness of County schools and other critical infrastructure. Contract with engineers to review existing plans and make recommendations, and then implement plans within fiscal constraints. Provide the FEMA Earthquake Safety Program for Schools course to help the county schools in Boulder and Whitehall and throughout the County to prepare to be self-sufficient in the aftermath of a destructive earthquake. Commence building and environment improvements such as protective "3M window film" and tie down projects in all county schools.

3. Flood

Floods have washed out the Milligan Canyon Road several times in the past few years. A flood plain plan to upgrade drainage in the canyon area, collaborated with the State Hazard Mitigation Officer, Larry Akers, has been completed, is on the shelf and will be a funding priority item under the flood projects. This area will be at risk until the recommended and engineered changes are made.

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An additional project has been identified in Whitehall that will involve cleaning out the unused irrigation head gates on Whitetail Creek.

4. FM Radio Alert System

Jefferson County has no radio stations and relies on Butte, Helena and Bozeman for emergency broadcast messages and not all stations are received in all areas of the county. Therefore, since there is no connecting source for emergency information, a low frequency FM radio alert system is currently being developed. The county has seven (7) radio site construction permits from the FCC, which cover the entire county including coverage to remote areas. Although it is not anticipated, these permits would expire in May and August 2004, and will not be reissued if the sites are not developed.

The Montana City and Whitehall sites, which would have been the first to expire, have had antennas and transmitters constructed. They have both proved to cover a large area, with reception from each available almost as far as Boulder. The FM stations will allow for broadcast of emergency messages, which affect the entire county or just a portion of it. Further, they will be used to pass information regarding road closures and conditions, evacuations, weather storm warnings, and many of the other emergency situations that arise in a regular basis. In the event of need, the Sheriff or the Emergency Operations Center will

activate them.

These FM stations will increase the coverage capability by making use of high-speed wireless Internet system. Potential use of the Reverse 911 capability only works for those that have "land line" telephone service. Therefore, it will not work for those who use cell phones as their primary or sole source of communication.

Non-emergency messages; e.g., public meetings, special events and school events, may also be transmitted over these stations. The County DES anticipates that the business community will become involved with sponsorships for these programs. Additionally, this system can be made to work similarly to the weather radios that turn on automatically for emergencies.

5. Emergency Services

In order to increase response capability, promote recruitment and training of emergency personnel and volunteers for local emergency response agencies or to help staff the Emergency Operations Center (EOC) in the event of any disaster.

6. Education

It is important that citizens be prepared for any disaster and recognize that there is a perceived seventy-two (72) hour window that citizens must be able to take care of themselves before assistance will arrive. Educational programs may be accomplished by using the school system as the catalyst, in this manner the cost for these programs will be minimized in comparison to the benefit derived.

C. Implementing Mitigation Measures

The aforementioned projects will be prioritized in accordance with the ranking principles set forth in this plan in Chapter 1, Paragraph G. The results of a cost/benefit analysis and estimates of preservation of life and property will all enter into the prioritization equation.

These projects will then be implemented through the LEPC, in consultation, and in conjunction, with the Tri-County Fire Working Group, its existing and future plans; and by authority of the County Commissioners, the County Growth Plan; and the necessary Boulder and Whitehall city officials, as is appropriate. Also, the progress of implementation will commence based upon on availability of funds and according to capital improvement plans for each of the effected jurisdictions.

In addition, future development in the County will be considered synergistically with all the applicable county plans, such as this pre-Disaster Mitigation Plan; the County Growth Plan, the County Fire Plan.

Chapter VI

Land Use and Future Development:

A. Jefferson County Land Use

Much of the information in this Chapter is taken from the superb Jefferson County Growth Policy (Growth Policy) adopted on June 13, 2003. According to the Growth Policy, early settlers came to Jefferson County during the gold rush and established the towns that are today the centers of the County small town population. The towns of, Basin, Clancy, and Montana City grew from rich mineral deposits and north/south activity of the stage coach and railroad. Similarly, Whitehall grew as a railroad town supporting shipments of mineral ores and products across the country. Boulder, on the other hand, developed into an agriculture area early on as the miners turned from the search for mineral deposits to using their land in the Boulder River Valley for cattle and sheep. Many of those farms and ranches still exist today.

With the down trend in mining, the thriving town of Basin once rich in placer mines has become a quiet little town relying on a few radon health mines, artists and tourism for its economy.

From the railroad roundhouse in a community of railroader workers, the Clancy community has grown the most over the years, with its mountain environment, views and small town amenities, becoming a bedroom community for the larger city of Helena a short commute to the north.

Montana City, the first county seat, settled into a quiet existence for a hundred years until the building boom of the 1990's. Now, readily accessible to the population of Helena, it embraces the prosperity of restaurants, services, and beautiful homes.

According to the Growth Policy, the most remarkable land use changes have been to residential and recent residential growth has occurred at the wildland/urban interface. The Growth Policy identifies the peril, particularly wildland fire, of such development and has taken that to task, as will be pointed out in the next section of this Plan.

Although the culture and economy of the County has been dependent on the land, for the most part it has moved away from mineral and rock mining and timber harvest to farming, ranching and residential subdivisions. Although forests cover almost half of the County land area and timber harvesting does still take place, most of the forested mountain land is now primarily utilized for hunting and recreation. In all, however, farming and ranching became the way of life during the twentieth century and agriculture remains the predominant land use throughout the county.

B. Analyzing Development Trends

The Growth Policy, which looks keenly and extensively into the history of the County and the present dynamics, projects an increasing need for housing, jobs, and public services. These

trends are fully analyzed and with full cognizance of potential hazards, the formal policy has recommended steps to ensure that subdivision regulations apply to all subdivisions. They include:

1. Provide proof of adequate potable water;
2. Have acceptable sewage disposal and storm water drainage;
3. Provide appropriate fire protection, emergency access and ingress/egress roads;
4. Include dust control and weed control plans;
5. Have fire protection plans; and
6. Include a wildlife corridor plan

The Planning Board recommends the development of a land use classification system that will identify basic resource areas subject to development and use constraints that include public ownership. Steep slope, flood susceptibility, poor access and lack of potable water supply and/or fire suppression capability are conditions that discourage development in identified areas.

The City of Boulder Planning Board is actively working on a Growth Policy and the Town Council of Whitehall is considering a growth policy project prefatory to infrastructure upgrades and improvements in the next several years.

Chapter VII

Plan Maintenance

The county DES and LEPC plans to complete an annual, or at the least a biannual, hazard analysis to identify potential hazard problem areas and mitigation efforts by other agencies. This analysis also would predict the County's ability to address currently identified potential hazards through a capability assessment and, by way of this process, discover additional hazards that may represent a potential impact on the citizens and property of the County. For example, the Plan will be updated to include the results of the Geographic Information System (GIS) survey to identify and locate critical facilities and emergency support facilities and functions. Also, the County Commissioners have awarded the contract for preparation of a County Fire Plan, and when that project is complete, that plan will be incorporated in this Plan.

As additional hazards are identified as potential risk, and as mitigation projects are completed, this Plan will be updated accordingly. Further, within the five year review period required by 44 CFR 201.3(d)(2), the County will submit the Plan and any revisions to the state DES and to FEMA for approval.

Annual meetings, open to the public, will be held and these meetings will be advertised in the local newspapers. Thus, public participation in the annual analysis and periodic plan maintenance process will be encouraged. Involvement may be accomplished by attending and participating in noticed meetings and/or by writing and submitting proposals to the Jefferson County LEPC chair at:

Jefferson County Disaster & Emergency Services
P.O. Box H
Boulder, MT 59632
(406) 225-4035

In addition, the DES Coordinator and the LEPC will be responsible for completing the five-year plan update and submitting such to the State Hazard Mitigation Officer and the FEMA for approval and acceptance.